Vol. 24

# DUBUS

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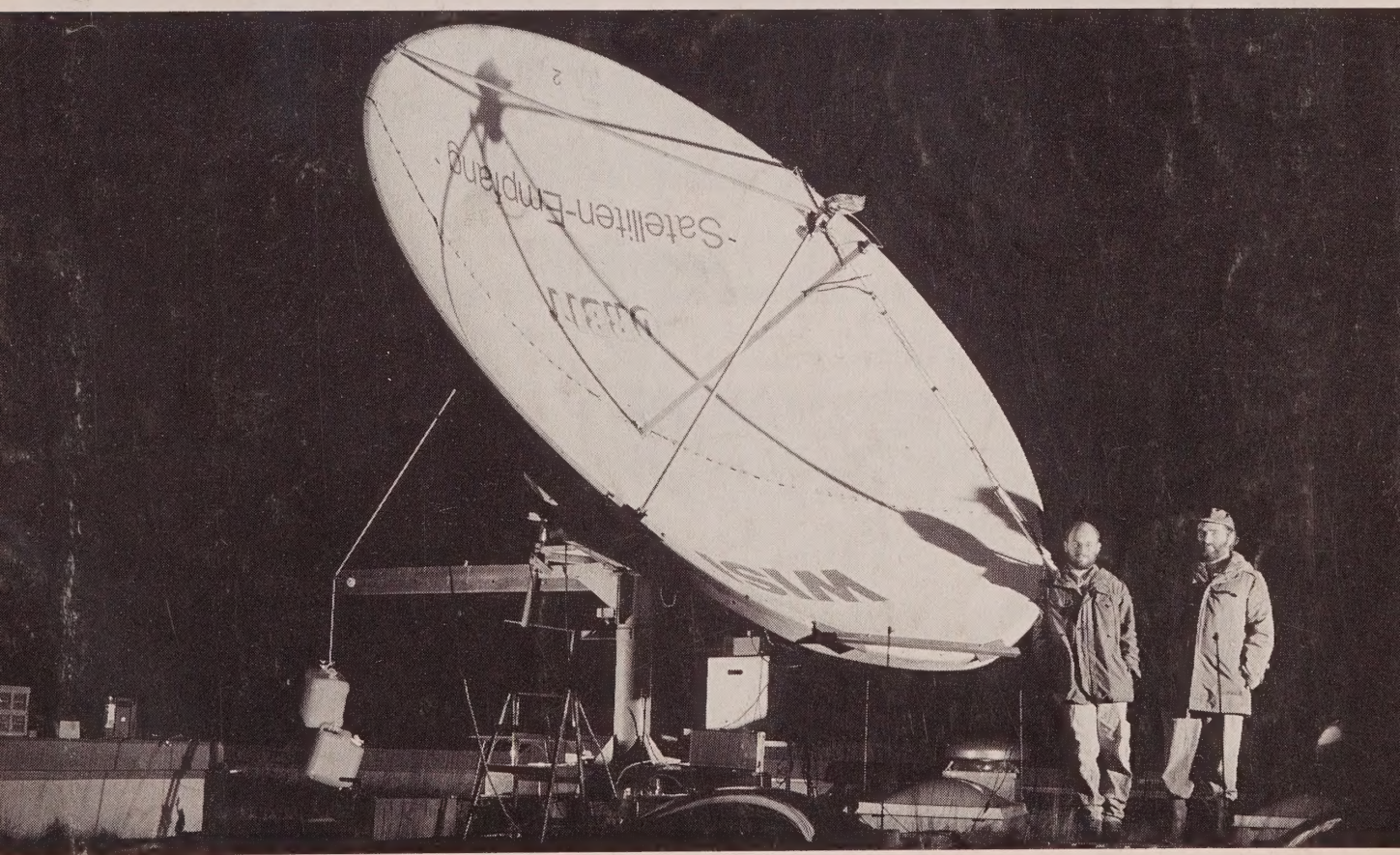

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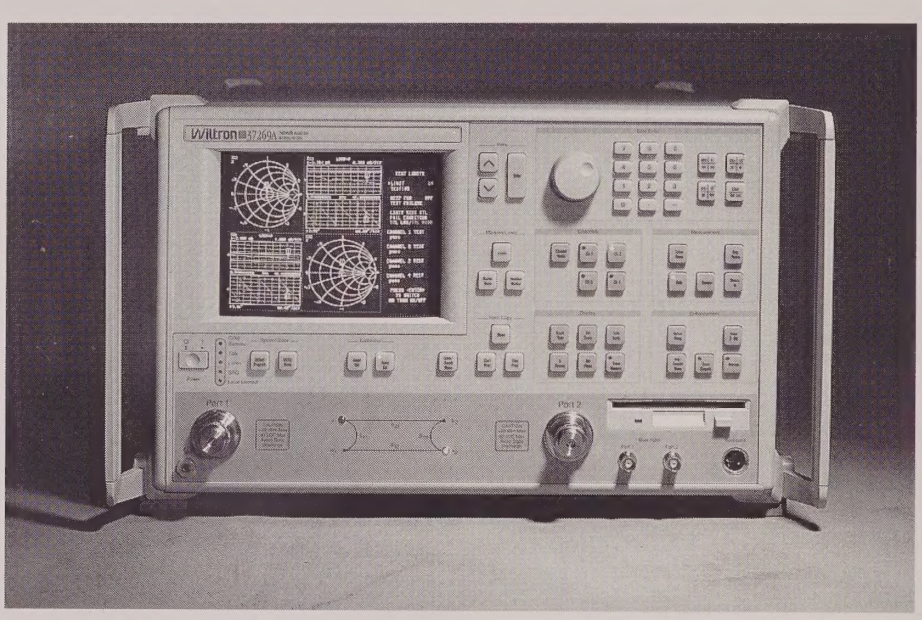


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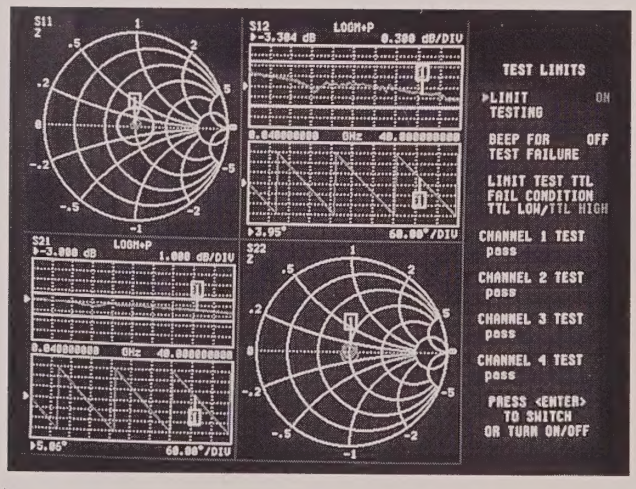


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# Technical Reports

Editor: Rainer Bertelsmeier, DJ9BV

# 144MHz wideband noise amplifier

*Charles Suckling, G3WDG*

## Introduction

This amplifier was developed to amplify the output from a 10GHz receiver with a 144MHz if to a level capable of driving a Hewlett Packard power meter (HP432). It has many applications, from noise figure measurement/comparison in conjunction with a calibrated noise source to sun/moon noise measurements of EME equipment. Its main use to date has been for dish tracking for 10GHz EME using moon noise. For accurate noise measurements the amplifier/power meter system has two main advantages over audio type power meters - it is very accurate (limited only by the linearity of the amplifier) and the noise level does not fluctuate to any noticeable extent. Audio measurements suffer from receiver agc action, unknown detector characteristics etc which can ofter cause several dB error in quoted sun noise readings! For moon noise tracking an accurate power meter is not required of course: I use a simple diode detector/op amp combination which gives 0 to fsd of about 3dB.

The circuit diagram of the amplifier is shown in Fig 1. The amplifier consists of a BFR91 tuned input stage for low noise figure, driving a cascade of 4 modamps with stages coupled through 2-chamber TOKO helical filters, which define the bandwidth of the amplifier. The bias to the first stage is adjustable to allow the desired output level to be set for a wide range of input levels. The amplifier gain can be varied from 33 to 75dB. At the highest gain setting, the noise output from a typical converter (eg 3dB noise figure, 30dB conversion gain) will be amplified to approximately -6dBm, plenty to drive a thermal power meter.

The output modamp was chosen to have a high 1dB compression point. 0.25dB gain conpression occurs at about 7dBm output for a cw signal. For noise measurements it is normal practice to expect compression effects to occur some 10dB below the cw value, so it is recommended for highest accuracy not to exceed about -3dBm noise output power. This should give sufficient range to measure say at least 17dB of sun noise, as the power meter would be measuring about -20dBm on cold sky, which is within the capability of an HP432 type power meter if the meter is zeroed frequently to take account of any zero drift.

## Construction

The construction of the amplifier is straightforward. The component layout on the pcb is shown in Fig. 2. The pcb is housed in a homemade box built from single or double sided copper clad pcb material. The prototype used double-sided, with only the internal seams soldered. The accompanying figures should explain the construction. The location of the pcb in the box is shown in Fig 3, and Fig 6 shows how the connectors are fitted, by filing slots in the pcb to accept the connector flange.

Details of the input coil are given in Fig 5. The bias inductors Lb are 15 turns of 0.3mm enamelled copper wire internal diameter 3mm, while the FB inductors were 1 turn of 0.3mm wire on a small

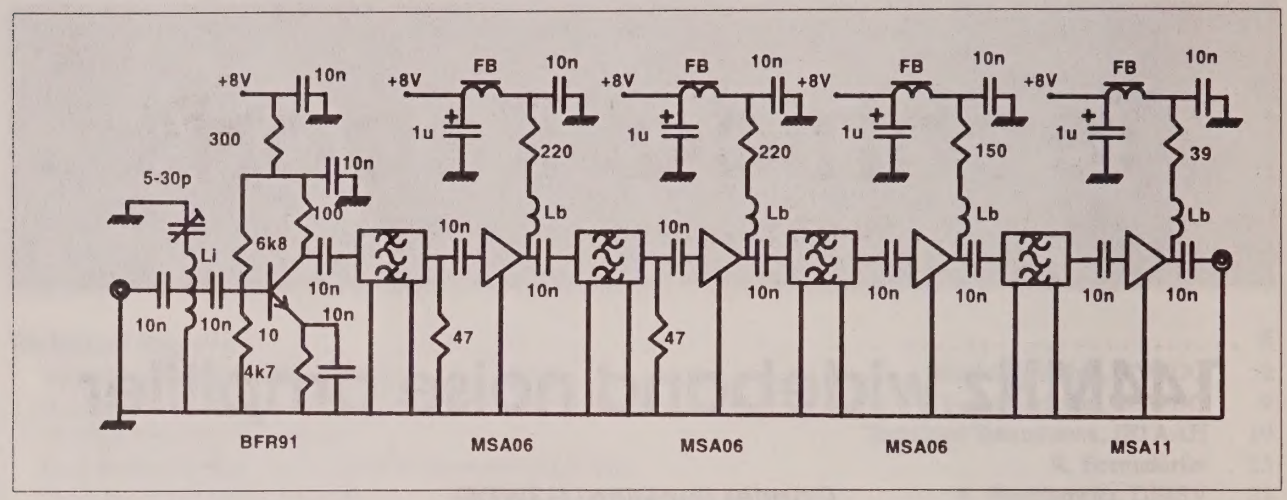



**Fig. 1: Circuit Diagram**

single hole ferrite bead. Mounting of the Toko helical filters is shown in Fig 4. The filters are Toko type 271MT-1006A Cirkit stock # 17-10062. It is recommended to slot the holes in the pcb where the tabs of the filter are to pass through. This can be done by "filing" with a drill or sharp knife. In order to make soldering to the filter tabs easier, it is recommended to scrape or file off the laquer and tin the tabs before fitting the filter to the board. If this is not done, soldering the tabs to the ground-plane side can be difficult.

The +8V power connections were brought out individually through feedthrough capacitors mounted in one of the sides of the box, and commoned outside. The power feed to the first stage was fed from the wiper of a 250R ten turn pot connected between the +8V rail and ground. This is the gain control potentiometer. The +8V rail should be regulated - a 7808 three terminal regulator fed from a 12V supply was used in the prototype.

It is recommended not to mount the unit inside another housing, unless strong interfering signals on 144MHz are a problem. I had some problems initially with stability when the unit was put into another housing (diecast box). This was probably due to coupling between the flexible coaxial cables used to link the input and output connections to bulkhead sockets fitted to the secondary housing. Some level of screening of the component side of the board is probably necessary, such as a tinplate lid soldered to the inside of the box.

At the time of writing (1 Oct 1993) two prototypes of this amplifier have been built and the design should be considered experimental. It has not yet been fully beta tested, and is published mainly as a source of ideas rather than a fully proven design. Prototype pcbs are available from the Microwave Committee Components Service. Please phone for details.

One further note of caution. The output power from this amplifier is capable of overdriving the power sensors of certain types of power meter. If the amplifier is left connected to the power meter while transmitting, the output power under these conditions may be sufficient to cause a drift in the power meter zero, or could possibly damage the sensor.

## Deutsch

# Einführung

Dieser Verstärker wurde entwickelt, um das Ausgangssignal eines 10 GHz-Empfängers soweit zu verstärken, um es mit einem HP435 Leistungsmesser messen zu können. Die Baugruppe hat viele mögliche Anwendungen, angefangen von Rauschzahlmessungen mit kalibrierten Rauschquellen oder für Mond-/Sonnenrauschmessungen bei EME-Stationen. Bei mir wird das Modul hauptsächlich dazu benutzt, durch Messung des Mondrauschens auf 10 GHz meinen Spiegel für EME nachzusteuern. Bei Rauschzahlmessungen hat diese Baugruppe zwei Vorteile gegenüber Messung auf der NF-Seite:

1. Es ist sehr genau

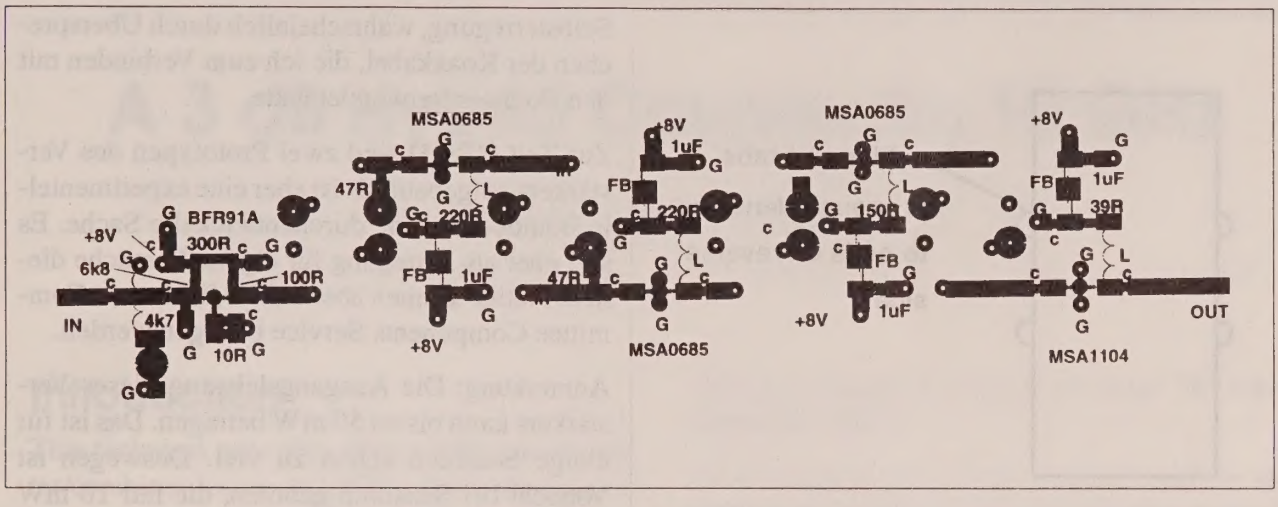



**Fig. 2: Component Layout**

2. Geringe Schwankungen der Anzeige bedingt durch die große Bandbreite

NF-Messungen leiden auch an der nichtlinearen Charakteristik des Demodulators und der AGC. Das kann zu Fehlern von einigen dB führen.

Wenn man Mondrauschen mißt, ist ein genauer Leistungsmesser wie der HP435 nicht erforderlich. Da es nur auf die relative Anzeige ankommt, kann man einen einfachen Diodendetektor nachschalten, der einen Vollauschlag von 3 dB auf irgendeinem Instrument produziert.

Die Schaltung ist in Abb. 1 zu sehen. Der Verstärker benutzt im Eingang einen BFR91 mit Ausgangsbandfilter. Diese Stufe hat eine niedrige Rauschzahl. Darauf folgen 4 Stufen mit MSA-0685/1104 Modamps. Diese sind über TOKO Helical-Filter gekoppelt und bestimmen die Bandbreite. Durch Ändern des Stroms im ersten Verstärker kann die Gesamtverstärkung von 35 bis 75 dB geregelt werden. Bei der höchsten Verstärkung wird der Output von einem Konverter mit 3 dB Rauschzahl und 30 dB Verstärkung auf ca. -6 dBm verstärkt. Damit kann man ohne weiteres einen thermischen Leistungsmesser ansteuern.

Der Ausgangsverstärker ist ein MSA-1104, um eine hohe Ausgangsleistung ohne Kompression zu erreichen. Diese ist ca.- 0,25 dB bei +7 dBm Ausgangsleistung. Wegen des hohen Crest-Faktors (Verhältnis von Spitzenleistung zu mittlerer Leistung) bei Rauschsignalen ist es nötig ca. 10 dB unter der Kompressionsleistung zu bleiben. Für größte Genauigkeit ist es sinnvoll, unter einer Ausgangsleistung von -3 dBm zu bleiben. Ist die minimale Leistung des thermischen Leistungsmessers -20 dBm (z.B. ein HP432) kann man bei regelmäßigem Nullabgleich mindestens 17 dB Sonnenrauschen messen. Ein HP435 würde den Dynamikbereich auf mindestens 20 dB erweitern. Bei diesen Messungen ist die Genauigkeit ca.

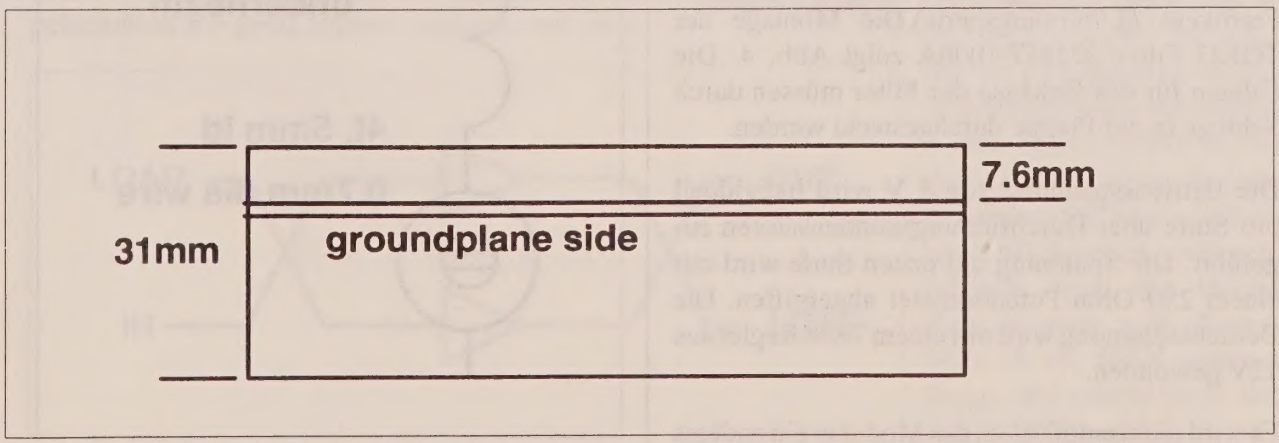



**Fig. 3: Location of PCB in the Box**

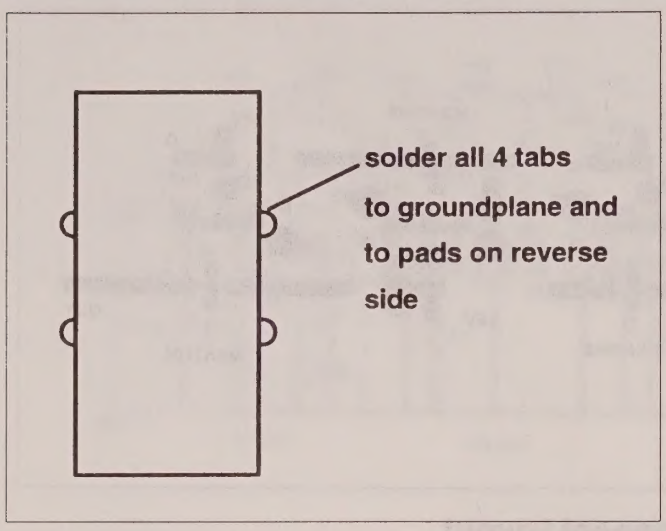



**Fig. 4: Filter Mounting**

±0,1 dB! Das unterscheidet sich wohltuend von der sonst erreichbaren Genauigkeit von ±1 dB, die man mit der Substitutionsmethode mittels geeichtem Abschwächer in der ZF erzielen kann, ganz zu schweigen von der Genauigkeit bei NF-Messungen, die ±2 dB kaum übersteigen dürfte.

## Konstruktion

Die Konstruktion des Verstärkers ist recht einfach. Die Anordnung der Teile ist aus Abb. 2 ersichtlich. Die Platine kann man in ein selbstgebautes Gehäuse aus Platinenmaterial einbauen. Die Anordnung der Platine in dem Gehäuse sieht man in Abb. 3. Abb. 6 zeigt, wie die Anschlußbuchsen eingebaut werden. Eine Detailzeichnung der Eingangsspule zeigt Abb. 5. Die Drosseln für die Modamps (lb) werden aus 15 Wdg., 0,3 mm CuL auf einem 3 mm Dorn gewickelt. Die Drosseln FB in der Betriebsspannung sind 1 wdg., 0,3 mm CuL durch einen Ferritkern (Dämpfungsperle).Die Montage der TOKO Filter 271MT-1006A zeigt Abb. 4. Die Fahnen für das Gehäuse der Filter müssen durch Schlitze in der Platine durchgesteckt werden.

Die Betriebsspannung von 8 V wird individuell pro Stufe über Durchführungskondensatoren zugeführt. Die Spannung der ersten Stufe wird mit einem 250 Ohm Potentiometer abgegriffen. Die Betriebsspannung wird mit einem 7808 Regler aus 12V gewonnen.

Es wird nicht empfohlen, das Modul in ein anderes Gehäuse zu montieren. Zuerst hatte ich ein Druckgußgehäuse verwendet. Das gab Probleme mit Selbsterregung, wahrscheinlich durch Übersprechen der Koaxkabel, die ich zum Verbinden mit den Buchsen verwendet hatte.

Zur Zeit (10/93) sind zwei Prototypen des Verstärkers aufgebaut. Es ist eher eine experimentelle Bauidee als eine durchentwickelte Sache. Es soll eher als Anregung für eigene Versuche dienen. Platine können aber beim Microwave Committee Components Service bezogen werden.

Anmerkung: Die Ausgangsleistung dieses Verstärkers kann bis zu 50 mW betragen. Das ist für einige Sensoren schon zu viel. Deswegen ist Vorsicht bei Sensoren geboten, die nur 10 mW aushalten.

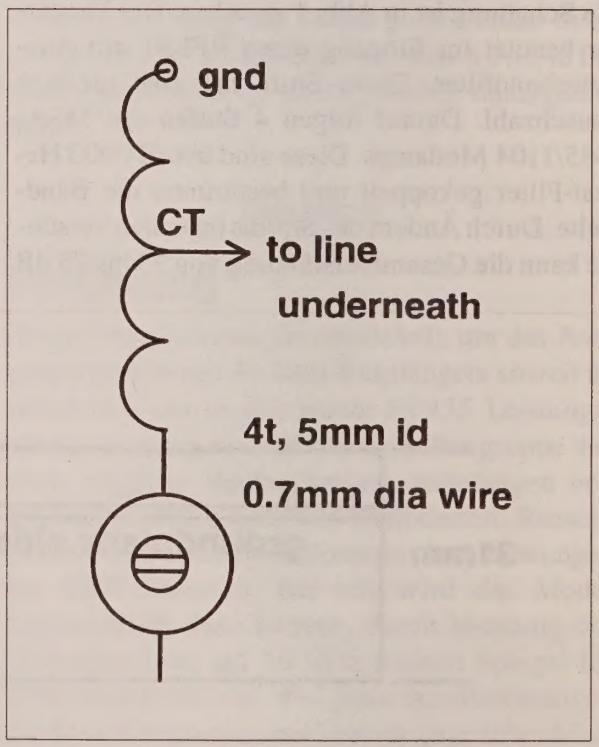



**Fig. 5: Input Coil**

# A 3 dB Hybrid Coupler for 10 GHz

*Charles Suckling, G3WDG*

## Introduction

This technical note describes a 3dB power splitter/combiner for use at 10GHz. It was designed to allow two identical solid state power amplifiers to be combined in a balanced configuration to give (nearly) twice the output power of one of the amplifiers, as shown in Fig 1. The couplers used in this application should have low loss, high isolation between the two output ports (to minimise interactions between the amplifiers), and equal amplitudes at the two outputs. This design uses the classic Riblet sidewall coupler which has all these properties over a reasonable bandwidth. The phase difference between the outputs of the coupler is close to 90 degrees (a quadrature coupler).

The low loss of the coupler and the 90 degree phase difference between the outputs would also make the coupler suitable for generating circular polarisation with a suitable dish feed, as shown in Fig. 2. Both LH and RH signals are available from the two input ports. Should EME operators choose to adopt circular polarisation on 10GHz in the future, this type of coupler could be used to make a reasonably high performance dish feed. (NOTE Most EME operators today are using LINEAR polarisation for good reasons, and I do not see a change to circular as likely!) The large "X" represents the coupler.

A third application for the coupler would be as a directional coupler, for setting up antennas, transitions etc., as shown in Fig. 3. A fourth application, which has been used by the author professionally, is to combine two signal generators when doing intermodulation testing of amplifiers.

The design of a well-proven SMA to waveguide transition is included in this note, and was used in the couplers built by the author to connect to the two amplifiers being combined.

## Construction

Constructional details of the coupler are given in Fig 4. Two pieces of brass waveguide (WG16/WR90) are required. One of the sidewalls of the longer piece of waveguide is removed over a length of 41.4mm, by milling out or by drilling small holes close to each other and filing. The shorter waveguide has one of its broad walls removed completely, either by milling, or by careful sawing (I used the second method, using a junior hacksaw and much patience!)

The two waveguides are then soldered together using solder paste and a hotplate. When cool, file or mill square the end where the two coupled ports are to be located, and mark out the holes for the SMA connectors. Drill these holes 4.1mm diameter, and deburr the holes. Drill and tap 2 M2 holes per connector, 5.85mm from the shorting plate locating with diagonal holes in the SMA connector flange. M2 screws up to 4mm thread length can be used to secure the connectors later,

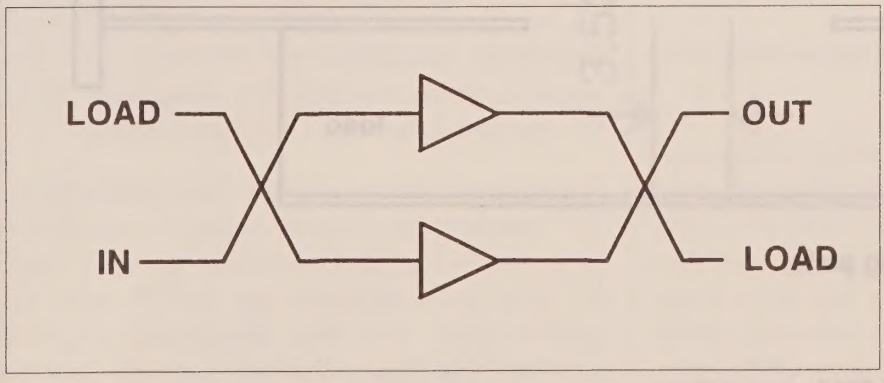



**Fig. 1: Balanced Amplifier Configuration**

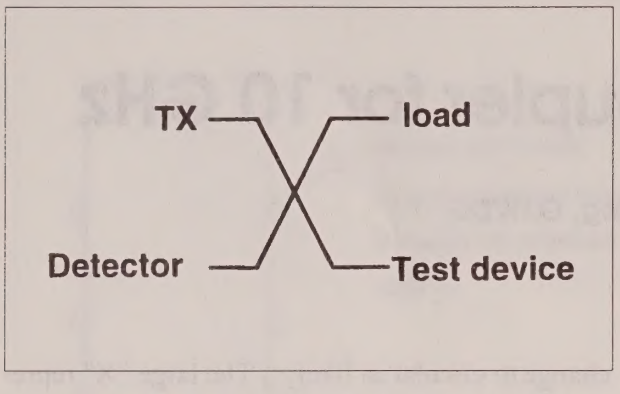



**Fig. 2: Coupler to measure VSWR**

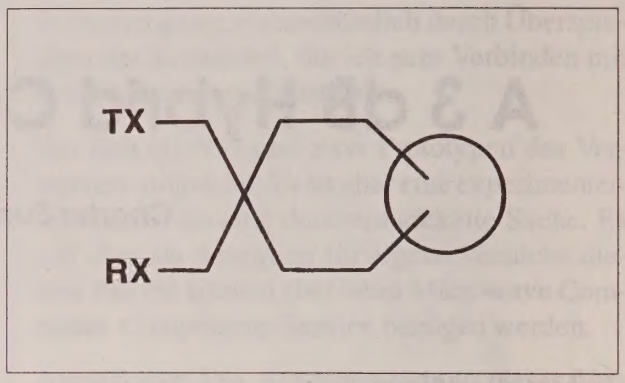
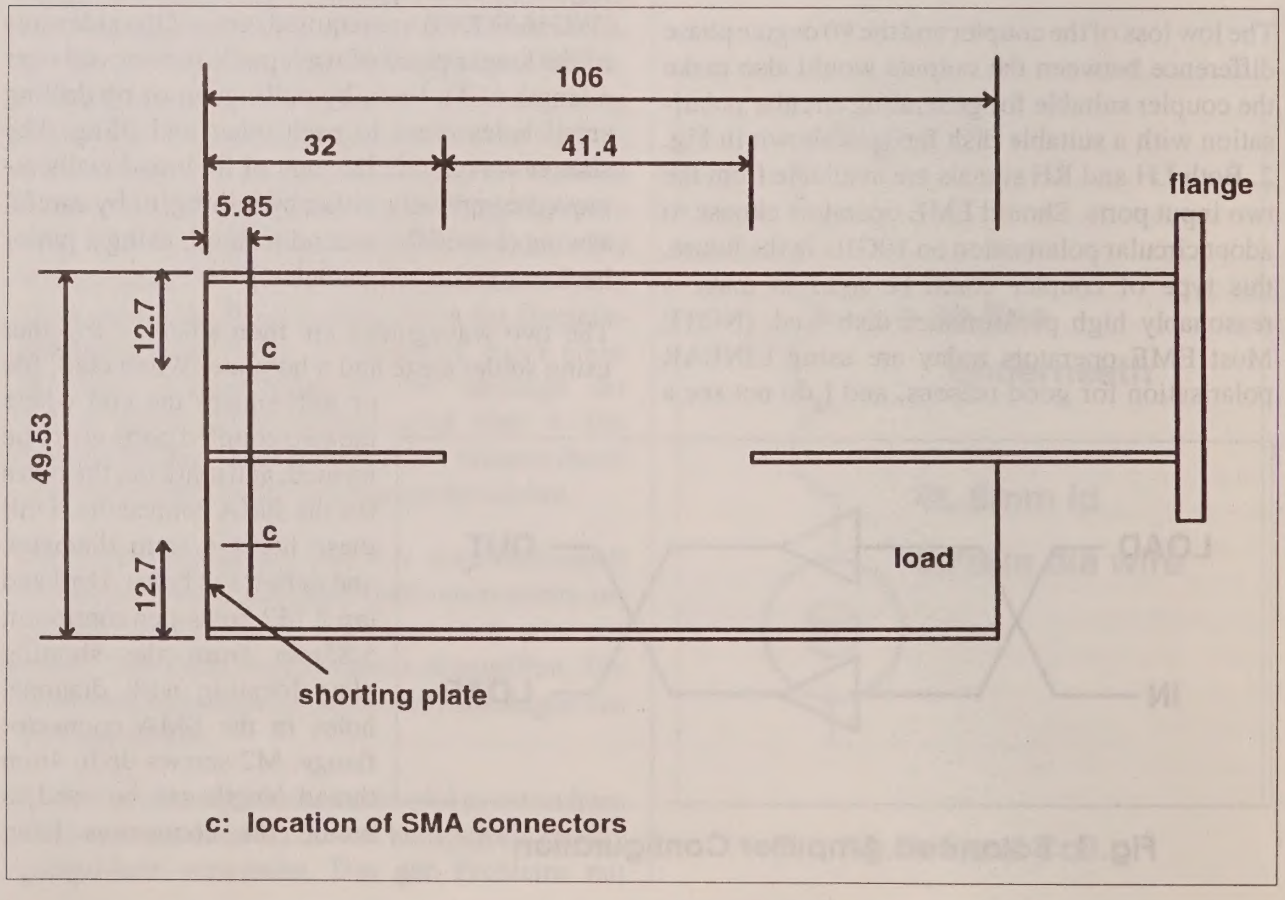



**Fig. 3: Generation of CP using coupler and feedhorn**

without affecting the VSWR of the transition (it is not necessary to file the screws flush on the inside of the waveguide). The shorting plate (one piece, 49.53mm x 12.7mm) may then be soldered on, using wet cloth around the rest of the assembly to prevent the seam joints from unsoldering. If a waveguide flange is to be used for the other port, this may be soldered on in the same way. I have also used conductive epoxy to fit the shorting plate, which avoids the problem of the the whole assembly falling apart when fitting the end plate and flange! If brazing equipment is available, this could be used to make the seam joints between the waveguides.

The choice of using waveguide flanges or SMA connectors is left to the constructor. As shown in Fig 4, the centres of SMA connectors are located 5.85mm from the shorting plate. If an external load is to be used, an SMA connector and shorting plate

**Fig. 4: Construction details of 10 GHz coupler**




**c: location of SMA connectors**

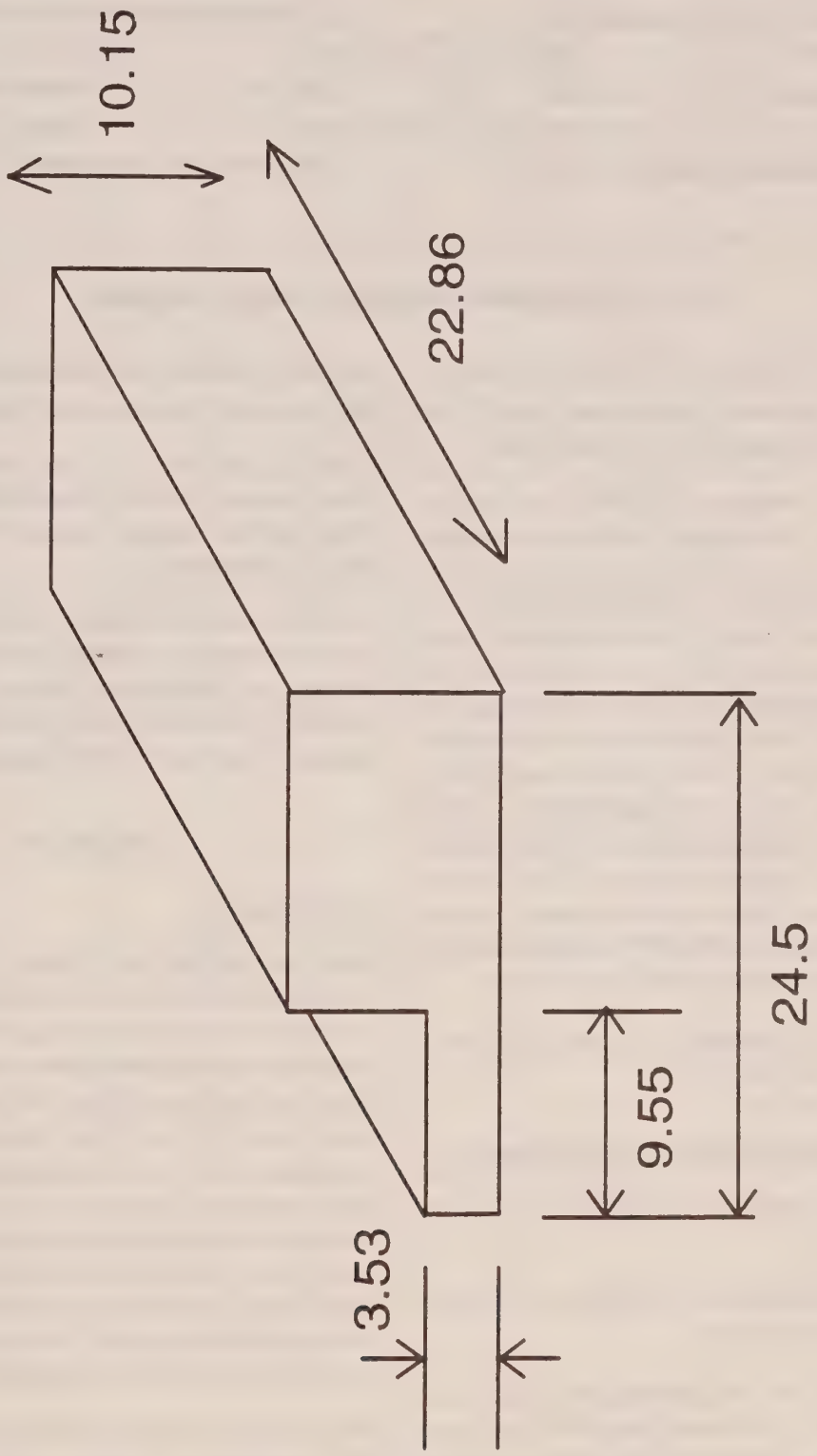



**Fig. 5: Details of Solid Load**

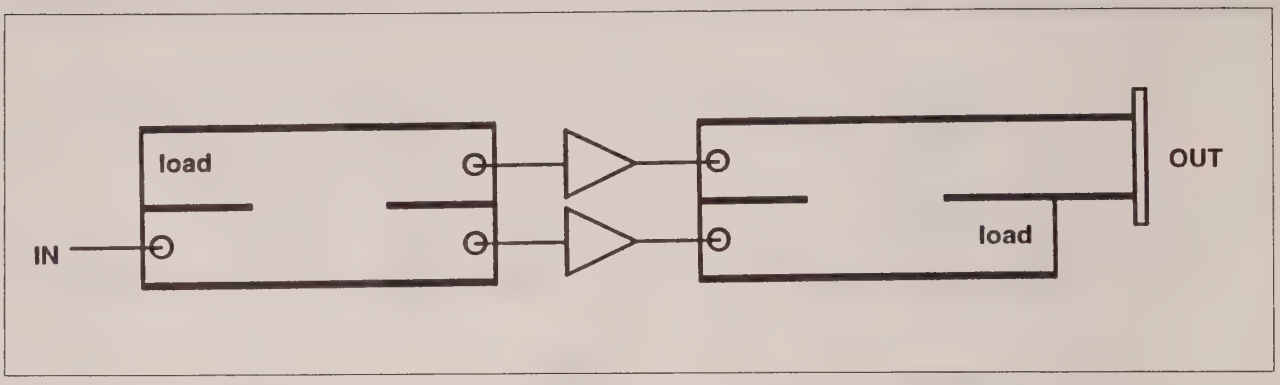



**Fig. 6: Balanced Amplifier using Couplers**

would be used in place of the inserted load shown in the figure (as would be the case also if the coupler were to be used to drive a dish feed).

The assembly is completed by fitting the load to the isolated port. Two types of load have been used by the author, a piece of lossy rubber (22.5 x 30mm glued to one broad face in the coupled port) or a piece of solid iron loaded absorber cut/filed to the dimensions shown in Fig 5. It was thought that the solid load might have better power handling than the lossy rubber, and this was used in the combining coupler. The lossy rubber load was used in the splitting coupler. I have no information on the material used in the solid load, as it was obtained from a piece of surplus equipment. The dimensions shown were found to be optimum for this material, but may not be correct for other materials and some experimentation may be necessary.

The couplers are arranged as shown in Fig 6 to make the balanced amplifier.

## Performance Measurements

Performance of the coupler is shown in Figs 7 to 11.

Fig 12 shows details of the SMA connector launchers used in the transitions.

Finally to check out the performance of the couplers in real life, a balanced amplifier was constructed using two nominally identical solid state amplifiers. One of these had 5W output power at saturation, the other 4.5W. Care was taken in the construction of the short interconnecting cables (.085" semi-rigid coax) to keep them all the same length. The balanced amplifier worked well, with just over 9W output power, and the amplifiers' operating currents etc seemed to be the same as they had been when operated individually.

Although this has not been tried, the couplers should also be suitable for combining TWT amplifiers, and are arguably easier to make than the Magic-T alternative.

Prepared, ready-to-fit SMA connectors and pieces of lossy rubber are available from the Microwave Committee Components Service (Tel +44 1933 411446) [please note change of telephone number owing to changes in the UK network].

### Deutsch

## Einführung

Dieser Artikel beschreibt einen 3 dB Koppler für 10 GHz. Er wurde entwickelt, um zwei Verstärker in einer symmetrischen Konfiguration, wie in Abb. 1 gezeigt, zu koppeln. Dann erhält nahezu die doppelte Ausgangsleistung. Solche Koppler müssen niedrige Verluste, hohe Isolation und gleiche Amplituden auf den Ein-/Ausgängen haben, um keine unnötigen Verluste zu verursachen. Das vorliegende Design benutzt eine Riblet-Kopplerstruktur, um die gewünschten Eigenschaften über eine brauchbare Bandbreite zu erreichen. Der Phasenunterschied zwischen den Ausgängen ist ca. 90°. Es ist folglich eine Qudratur-Koppler.

Die niedrigen Verluste und die Phasendrehung von 90 ° machen den Koppler außerdem zur Erzeugung von zirkulärer Polarisation geeignet (Abb. 2). Man kann entweder das RHCP- oder das LHCP-Signal von den Eingängen abgreifen (RHCP=Right Hand Circular Polarized = Im Uhrzeigersinn Zirkular drehend, LHCP = gegen den Uhrzeigersinn). Falls die EME-Leute zirkulare

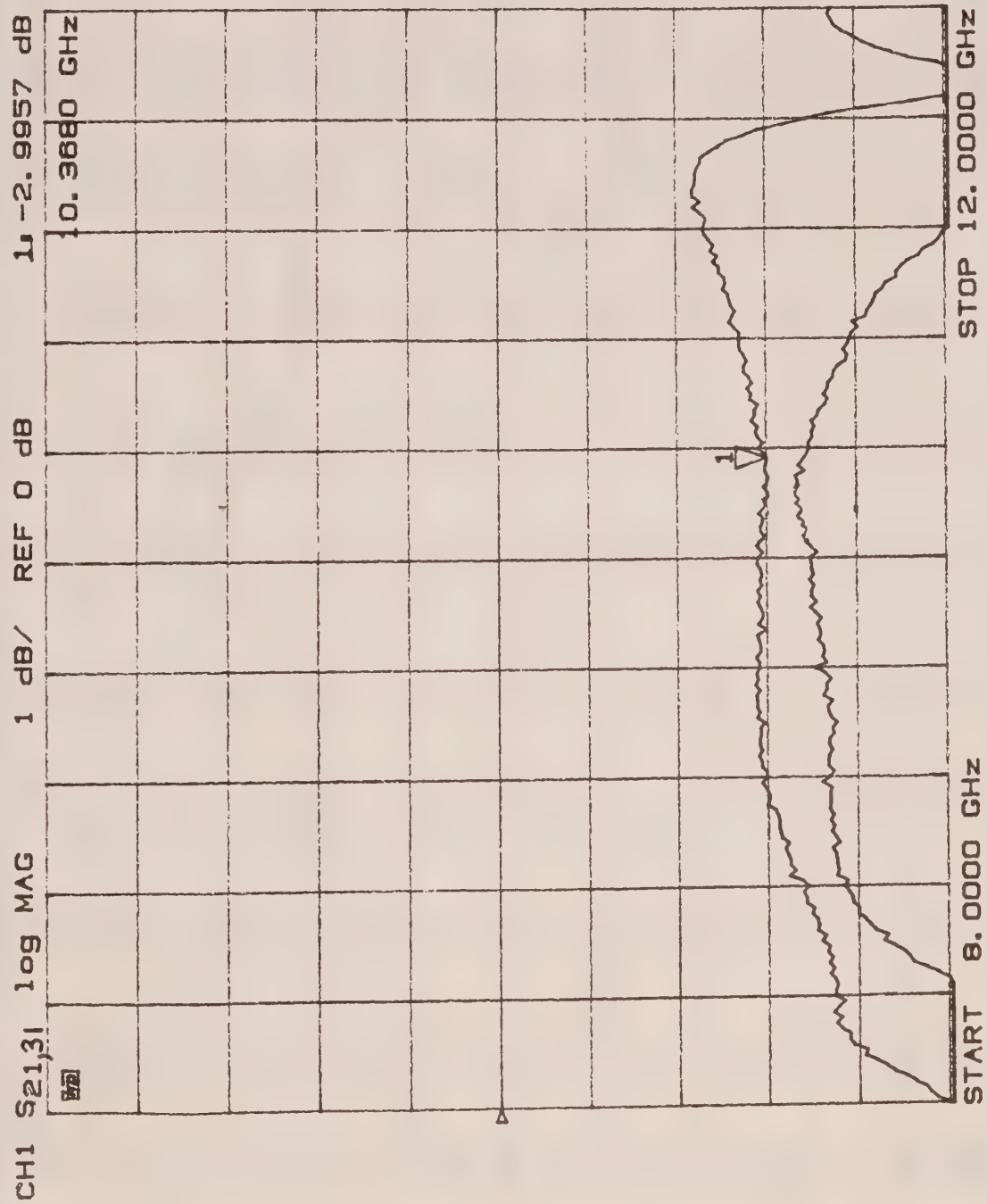



**Fig. 7: Amplitude and Phase Balance of one Coupler**

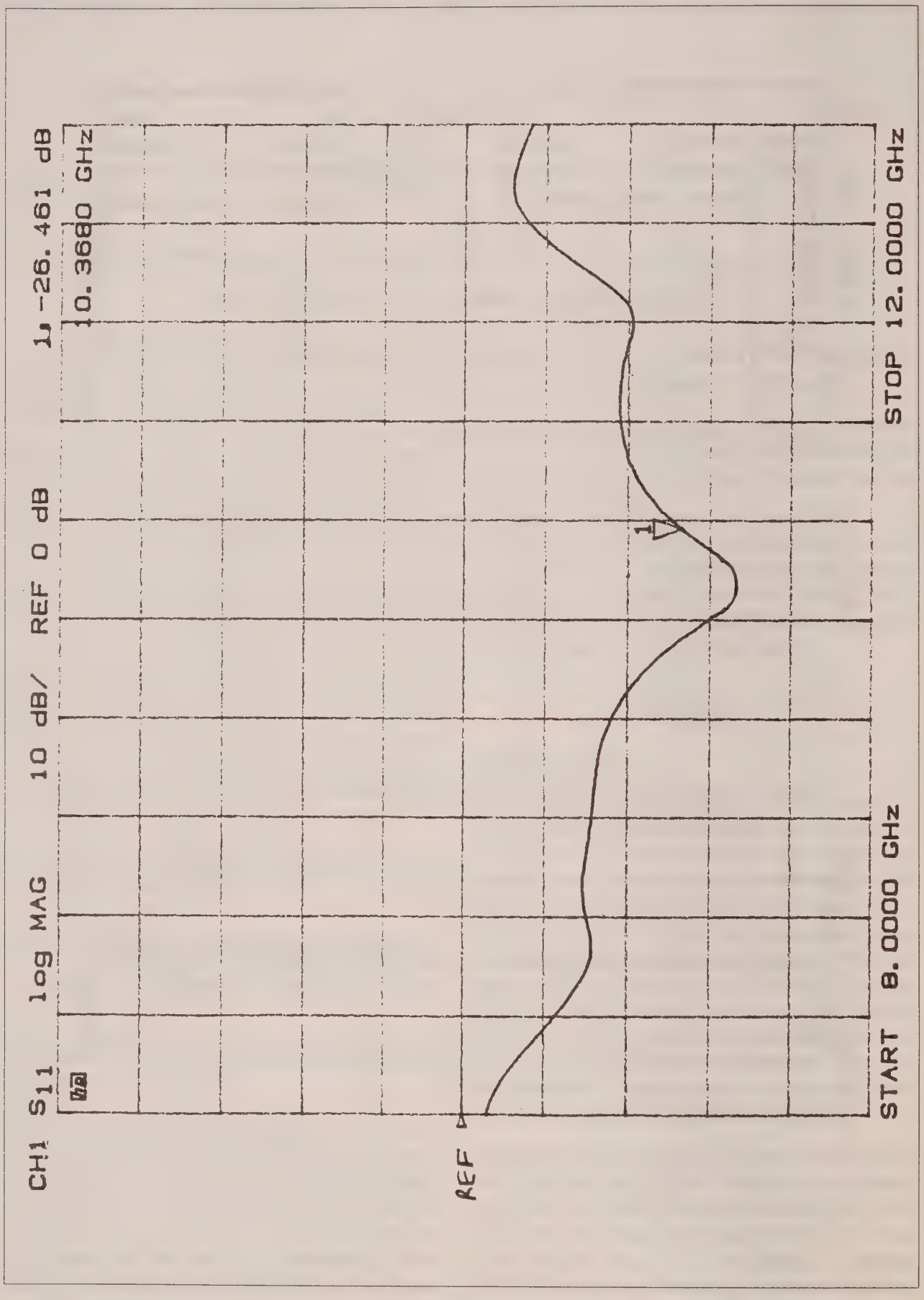



**Fig. 8: Measurement Input Return Loss**

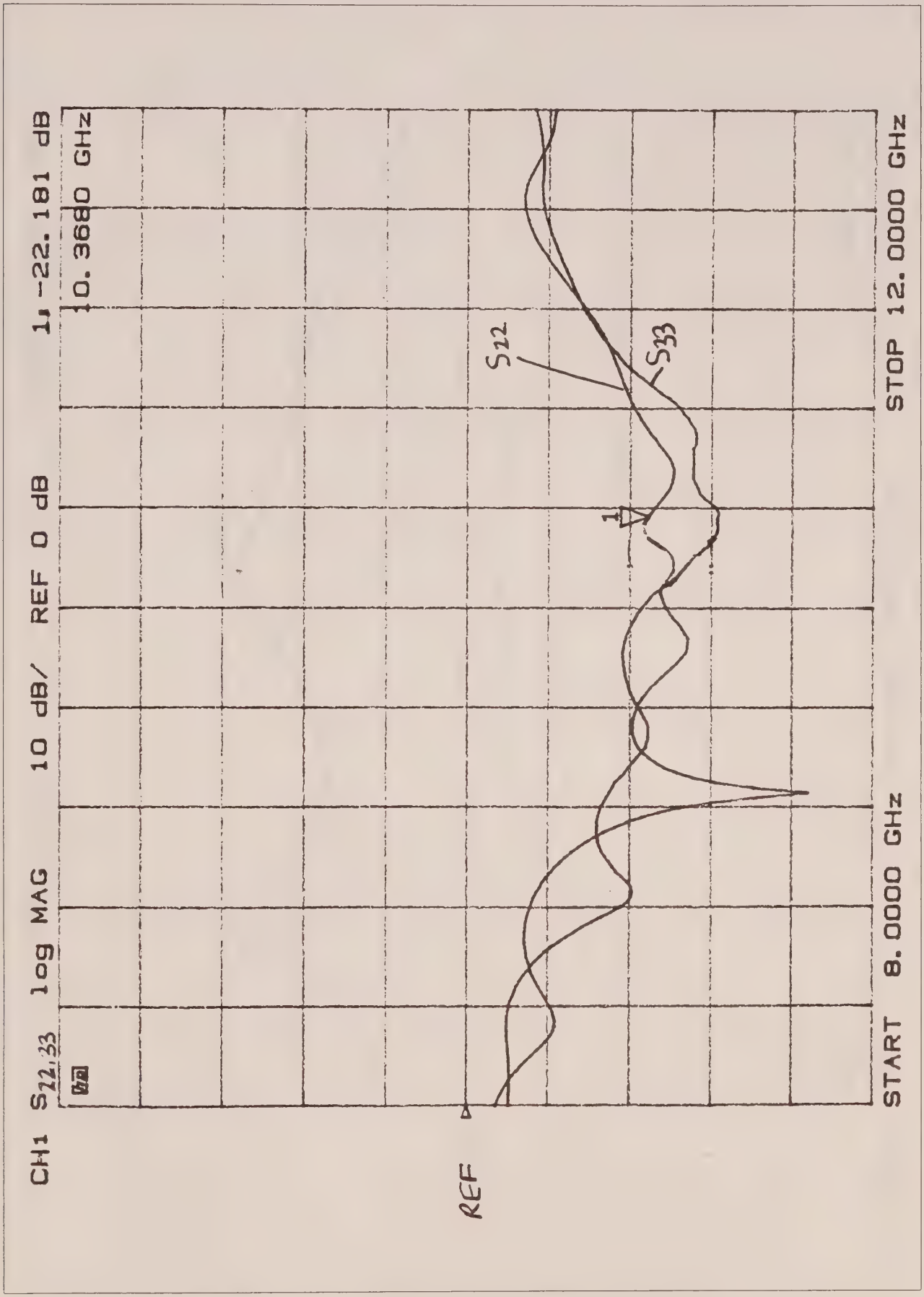



**Fig. 9: Measurement Output Return Loss**

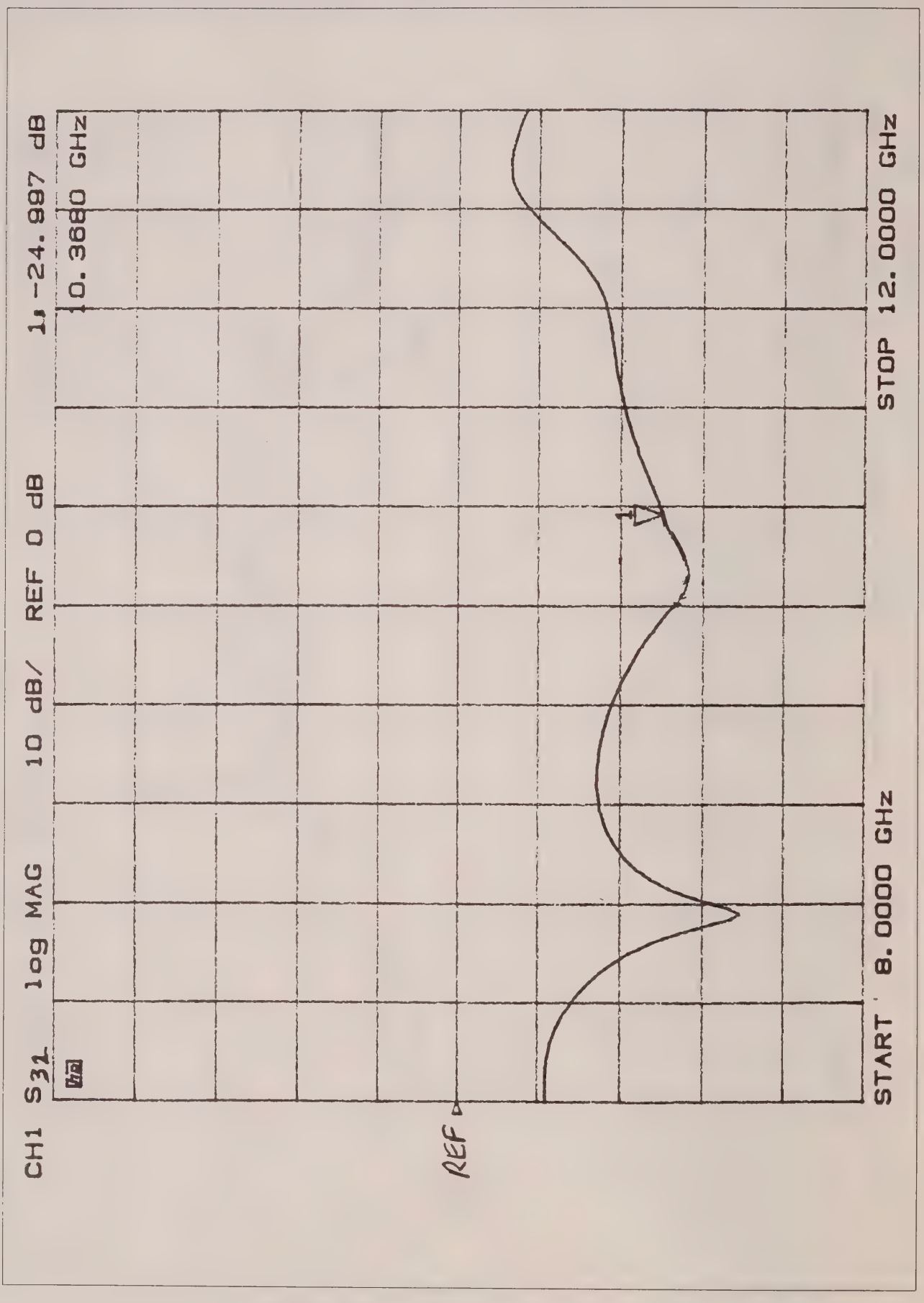



**Fig. 10: Measurement Isolation**

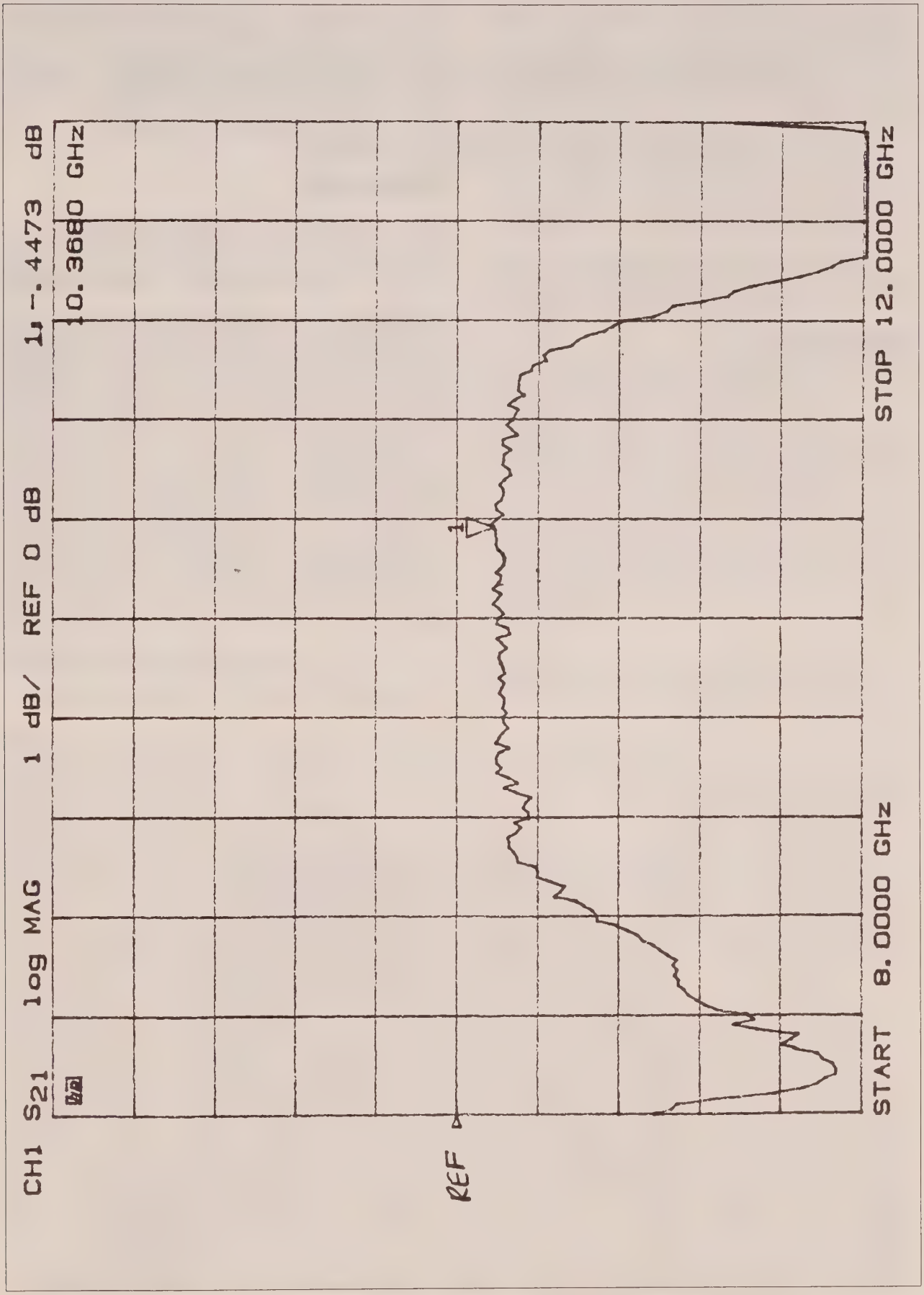



**Fig. 11: Measurement Through Loss Two Couplers**

Polarisation für die Zukunft als Standard[1] wählen sollten, kann man diese mit einem solchen Koppler einfach erzeugen. Eine dritte Anwendung für einen solchen Koppler ist der Gebrauch als Richtkoppler, um etwa Antennen oder andere Bauelemente zu messen. Eine vierte Anwendung besteht darin, zwei HF-Generatoren rückwirkungsarm, also intermodulationsarm, miteinander zu koppeln, um ein Zweiton-Signal für Messungen zu erzeugen.

Das Design eines bewährten und getesteten SMA-Hohlleiter Übergangs wird in Abb. 12 gezeigt.

## Konstruktion

Die Konstruktion des Kopplers ergibt sich aus den Abb. 4 bis 6. Man braucht zur Realisierung Zwei Stücke WR90 Hohlleiter. Man entfernt die Seitenwand eines Stückes auf einer Länge von 41,4 mm. Ebenso schneidet man die breite Seite des zweiten Stücks ab. Die zwei Stücke werden zusammen gelötet. Die Löcher für die SMA-Buchsen werden mit 4,1 mm Durchmesser gebohrt. Die SMA-Buchsen werden mit M2 Schrauben befestigt. Die Kurzschlußplatte (49,53x12,7 mm) wird aufgelötet.

Die Wahl der Anschlüsse, SMA oder Hohlleiter, bleibt dem Nachbauer überlassen.

In Abb. 4 sieht man, daß die SMA-Buchsen 5,85 mm von der Kurzschlußplatte entfernt sind. Falls eine externe Last angewendet wird, wird die interne Last durch eine SMA-Buchse und eine zusätzliche Kurzschlußplatte ersetzt.

Um die Konstruktion zu vervollständigen, muß noch eine 50 Ohm Last am isolierten Tor angebracht werden. Man hat zwei Möglichkeiten: entweder klebt man ein Stück Mikrowellenabsorber (22,5x30 mm) auf der breiten Seite in das isolierte Tor oder man verwendet ein Stück Eisenabsorber, das nach Abb. 5 angefertigt wird. Die zweite Lösung empfiehlt sich für hohe Leistung. Da ich genau weiß, welches Material ich hatte - es stammt aus dem Schrott - muß man eventuell mit den Abmessungen etwas experimentieren.

## Meßwerte

Die Leistungsdaten des Kopplers kann man den Abbildungen 7 bis 11 entnehmen. Abb. 12 zeigt den SMA-Hohlleiterübergang.

Um die Koppler zu testen, habe ich eine Zusammenschaltung von zwei 5 W Verstärkern gebaut. Einer hatte 4,5 W und der andere hatte 5 W Leistung auf 10,368 GHz. Die Verbindungsleitung aus 0,085" Semirigid müssen exakt auf gleiche Länge geschnitten werden, da sonst die Phase nicht stimmt. Der gesamte Verstärker hatte 9 W Ausgangsleistung mit etwa den gleichen Betriebsströmen, wie sie bei Einzelbetrieb waren. Obwohl es nicht probiert wurde, kann man die Koppler natürlich auch zum Koppeln von TWT's verwenden.

Teile bekommnt man beim Microwave Committee Components Service (Tel +44 1933 411446).

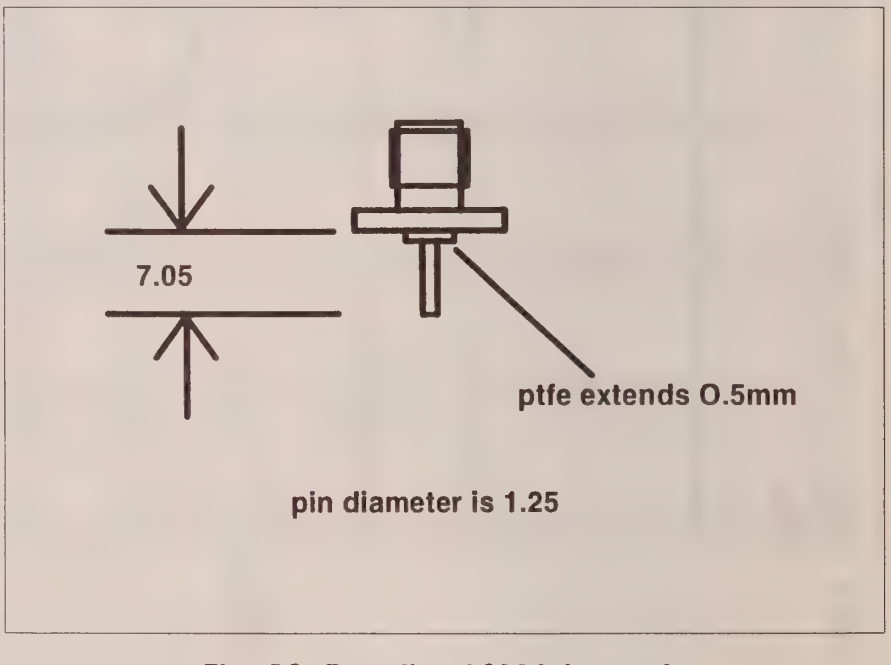



**Fig. 12: Details of SMA Launch**

1 *Die meisten EME-Amateure benutzen heutzutage aus guten Gründen lineare Polarisation und ich glaube auch nicht, daß sich das ändern wird.*

# 10 GHZ No-Tune Transverter

*Toshihiko Takamizawa, JE1AAH*

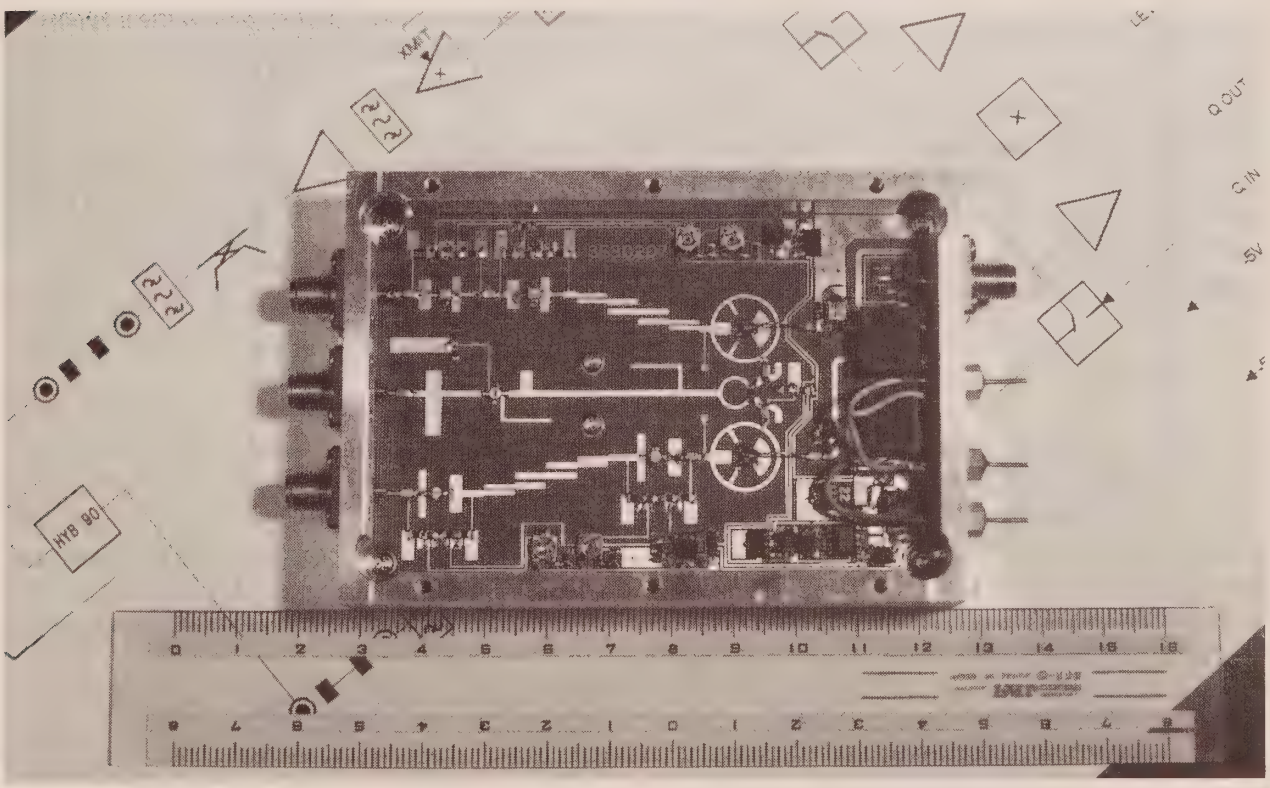
## Description

This transverter has been developed by my friend 7N1OXG, Jun Shiozaki. Fig. 1 shows the block diagram. It utilizes 1.28 GHz as IF. The reasons are the availability of commercial 23 cm allmode rigs in JA and the feasibility of stripline bandpass filters on 10 GHz. The RX uses two stages with the FHX06LG. A NF of 1.4dB is achievable. Total gain of the two stages is around 20 dB. The RF is routed through a 3-pole bandpass filter, which uses edge-coupled halfwave resonators. It follows a single balanced mixer with the HP2802 Schootky diode pair. Conversion loss is around 10 dB on 10 GHz. Total RX gain adds to 10 dB and total NF of the transverter is around 1.7 dB.

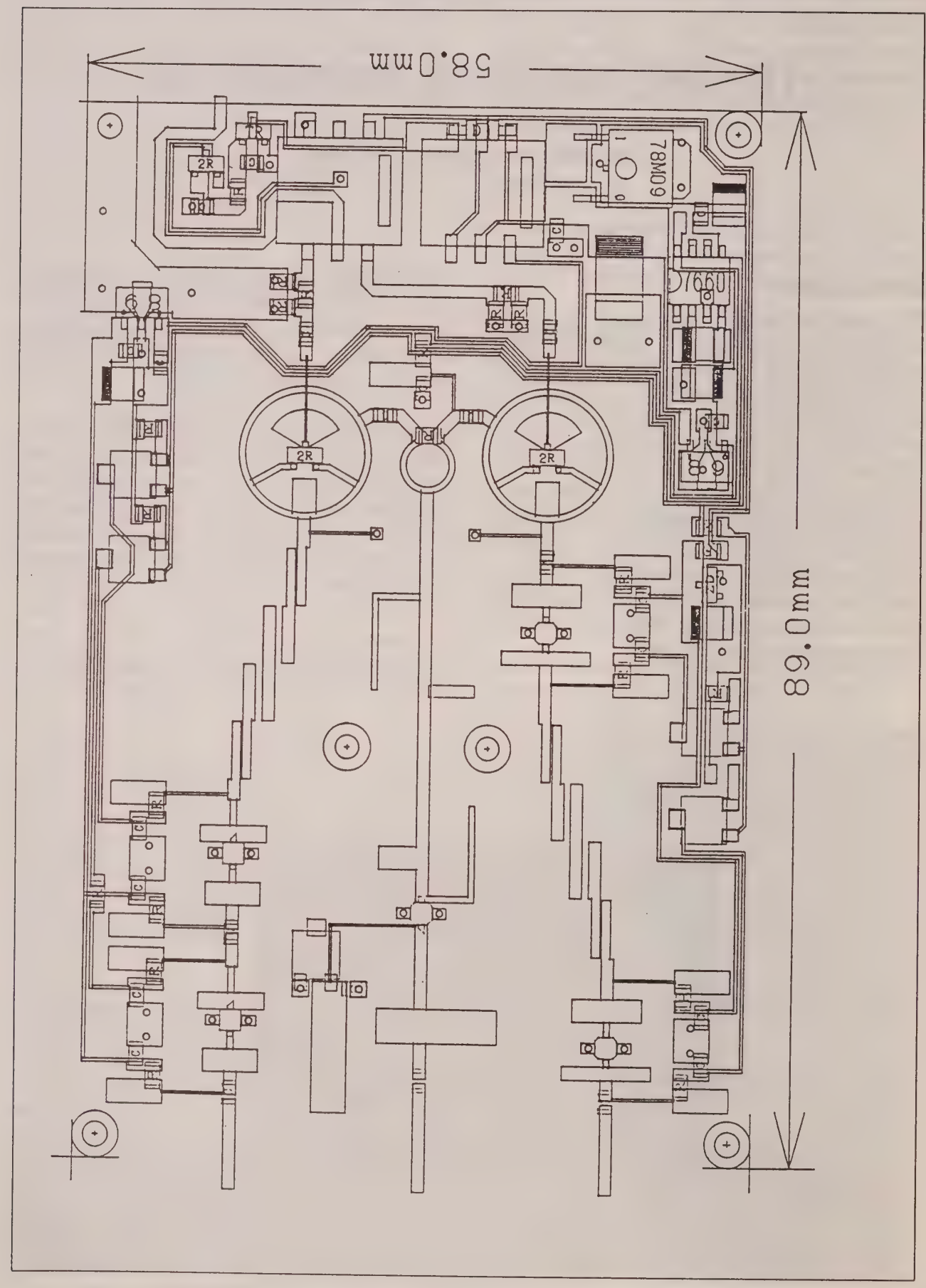
The TX utilizes two MGF-1402. The 1.28 GHZ IF is mixed with the 8.96 GHZ LO in a single balanced mixer. Output is filtered by the very same 3-pole filter as in the RX. The MGF-1402s amplify by 20 dB to an output of 10 dBm.

The LO-chain is made from a doubler starting from 4.48 GHZ. Output filter is a band reject filter for 4.48 GHz. This seems to be sufficient, because all 10 GHZ mixing products are filtered by the BP-filters. The 4.48 GHZ signal is suppressed about 20 to 30dB. The injection level into the mixers is about +10 dBm.

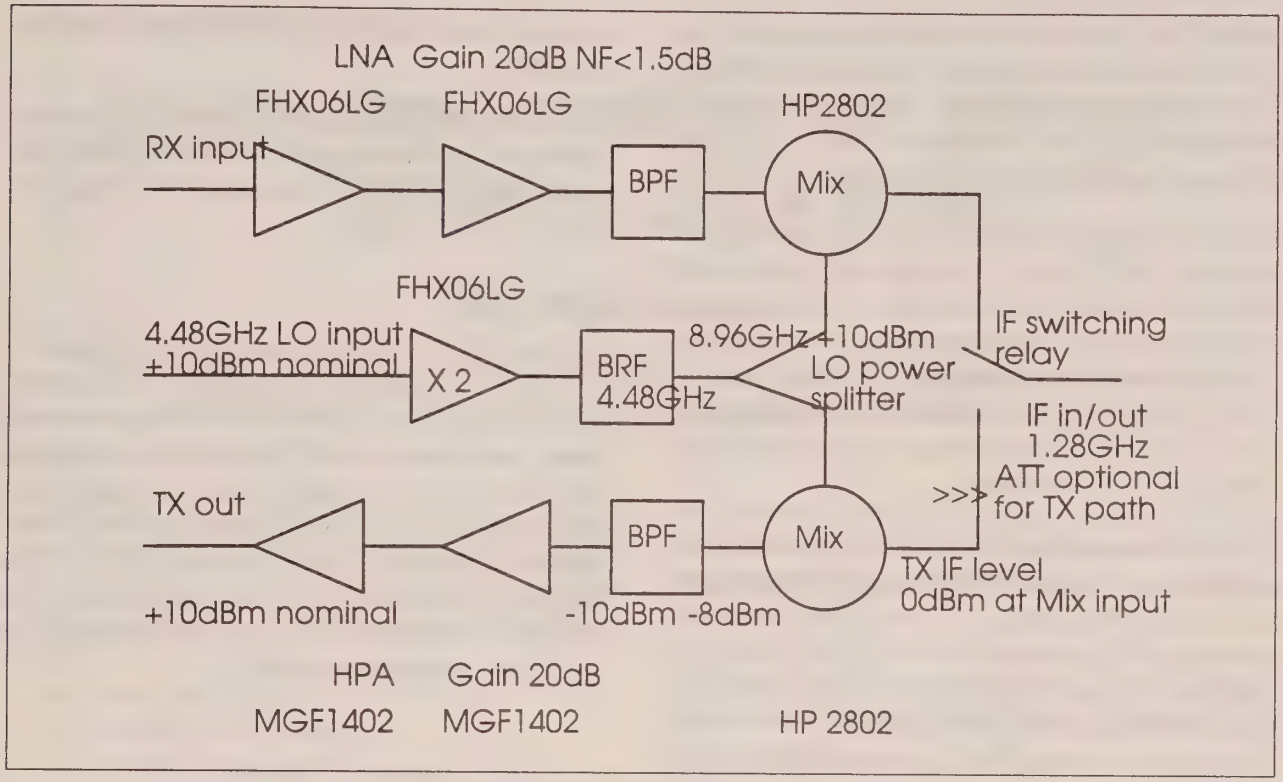
The transverter contains positive/negative bias supply and the appropriate switching facilities for IF and bias. Regulators are 78L05 and 7660.




**No-Tune 10 GHZ Transverter**




**Figure/Abb. 1: Layout**




**Figure/Abb. 2: Block Diagram**

## Construction

The transverter uses only SMD components. IF switch is a small Matsushita coaxial relay. The DC switch is a small reed relay. To obtain components 7N1OXG provides a kit. The PCB costs 4500 Yen. Ask me for kit or PCB by mail or fax.

After soldering all parts the current in the FETs is set by the bias pots. One remark to ESD-measures regarding the HEMTs: Personally I found those HEMTs quite robust and insensitive. You can just handle them by hand on your workbench. I never lost a HEMT by static damage!

Since TX-mixer input level is designed for a nominal value of 0 dBm, there is room for an attenuator in the TX path. You may need to construct an PI-type attenuator to adjust input level in accordance with the output of your IF rig. But more than 1 W output on this is prohibitive, because there is no room for high power resistors on the board.

Overall RX gain is 10 dB. Since overall NF is about 1.7 dB, this is sufficient for commercial transceivers in the IF. Excessive RX gain impairs IMD performance. The transverter can be used standalone for portable operation. For fixed station use you can add a mast-head preamp and also a power amp.

## Final remarks

It's very popular to use 1,28 GHz IF in Japan. For SHF transverters low IFs as 144 MHz for example are never used, because you cannot use fixed tuned stripline BPFs but have to rely on metal can BPFs. These seems to be not easy to construct and to reproduce. and need a spectrum analyser for tuning. The real solution is to use no-tune stripline BPFs. Those construction would be very easy to construct.

## Beschreibung

Dieser Transverter wurde von meinem Freund Jun Shiozaki, 7N1OXG, entwickelt. Abb. 1 zeigt das Blockdiagram. Der Transverter mischt auf 23 cm herunter, z.B. auf 1280 MHz. Damit kann man die weit verbreiteten 23 cm Funkgeräte benutzten. Außerdem erlaubt die hohe ZF die Anwendung von fest abgestimmten Streifenleitungs-Filtern. Die Eingangsstufen des RX werden von einem 2-stufigen LNA mit FHX06LG mit einer Verstärkung von ca. 20 dB gebildet. Dann folgt ein dreipoliges Streifenleitungs-Bandfilter mit seitengekoppelten Resonatoren mit einer halben Wellen-

länge. Der Mischer ist ein einfach symmetrischer Mischer mit dem Schottky-Diodenpaar HP2802. Der Mischverlust beträgt ca. 10 dB. Die gesamte Verstärkung im RX beträgt ca. 10 dB bei einer Gesamtverstärkung von 10 dB.

Der TX benutzt zwei MGF-1402 als Leistungsverstärker. Die ZF von 1,28 GHz wird mit dem 8,96 GHz LO-Signal in einem zum RX baugleichen Mischer mit der HP2802 gemischt. Das Ausgangsfilter ist baugleich mit dem im RX-Zweig verwendeten Filter. Die MGF-1402 FET's verstärken das TX-Signal um 20 dB und erzielen eine Ausgangsleistung von ca. 10 dBm.

Die Oszillatoraufbereitung besteht aus einem Verdoppler von 4,48 auf 8,96 GHz. Das Ausgangsfilter ist eine Bandsperre auf 4.48 GHz. Dieses unterdrückt die Grundwelle um ca. 20 bis 30 dB. Die anderen Oberwellen erzeugen Mischprodukte, die von den Bandpaßfiltern im RX- und TX-Zweig unterdrückt werden. Die Injektionsleistung ist ca. 10 dBm.

Der Transverter enthält Regler und Inverter für ±5V (78L05/ICL7660) und die Umschalteinrichtungen für die ZF.

## Konstruktion

Der Transverter benutzt nur SMD Komponenten. Das ZF-Relais ist ein kleines Matsushita Koaxrelais. Die Gleichspannungen werden mit einem kleinen Reedrelais umgeschaltet. Die Platine kostet 4500 Yen. Bausätze sind bei mir oder 7N1OXG erhältlich.

Nachdem alles bestückt ist, kann man den Strom in den FET's mit den Arbeitspunkt Potis einstellen. Noch eine Bemerkung zu den oft angesprochenen ESD-Maßnahmen. Nach meiner Erfahrung sind die HEMT's ziemlich robust. Man kann sie wie normale Bauteile mit der Hand anfassen. Ich habe noch nie einen HEMT durch statische Aufladung verloren.

Die Eingangsleistung im TX-Mischer ist auf 0 dBm festgelegt. Für Leistungen unter 1 W kann man einen Abschwächer mit SMD-Widerständen auf der Platine unterbringen.

Die Verstärkung im Empfangszweig ist 10 dB. Da die Rauschzahl ca. 1,7 dB beträgt, reicht das für normale Transceiver auf 1,3 GHz aus. Zuviel Verstärkung verschlechtert nur das Intermodulationsverhalten.

Der Transverter kann sowohl allein für Portabelbetrieb als auch zusammen mit zusätzlichen Vorverstärker und Leistungsverstärker für Feststationen verwendet werden.

## Ausblick

In Japan ist die Verwendung von 23 cm Transceivern ziemlich populär. Deswegen braucht auch keine abstimmbaren Resonatorfilter verwenden. Diese benötigen einen feinfühligen Abgleich, möglicherweise mit einem Spektrumanalysator, und müssen als extra Bauteil gebaut werden. Streifenleitungsfilter sind dagegen schon in die Platine integriert und brauchen nicht abgestimmt werden. Eine solche Technik ist sehr einfach zu bauen und verspricht unmittelbaren Erfolg.

# Low Noise Amplifier with BFP 420 Transistor at 2.4 GHz

*K. Brenndörfer*

***Siemens AG, Bereich Bauelemente, Vertrieb, HL EH PD 1, Produkt-Information, Balanstraße 73, D-81541 München,*** ***Copyright by Siemens AG 1994***

The SIEMENS Grounded Emitter Transistor Line is a complete new generation of silicon bipolar junction RF-transistors. This application note shows a low-noise amplifier with the following data:

- **Gain: 13.6 dB**
- Noise Figure: 1.4 dB @ 2.4 GHz, $V_{ce}$=2.5V, $I_c$=5mA
- Unconditionally stable at all frequencies

To achieve a proper matching at the input and output and to stabilise the transistor, a well defined emitter inductance is used as negative feedback. This decreases the usable gain of the transistor. Without this feedback, the gain would be **17.5 dB**, but matching and stability would be worse. Noise figure would stay at 1.4 dB because of the lossless feedback.

For DC-biasing a two-transistor active stabilisation is used, which works as temperature stable current source.

Figure 1 shows the circuit diagram:

Figure 2 shows the circuit layout. Substrate material is PTFE, $e_r$=2.45, H=0.38mm, e.g. Di-CLAD 527, 15mil.

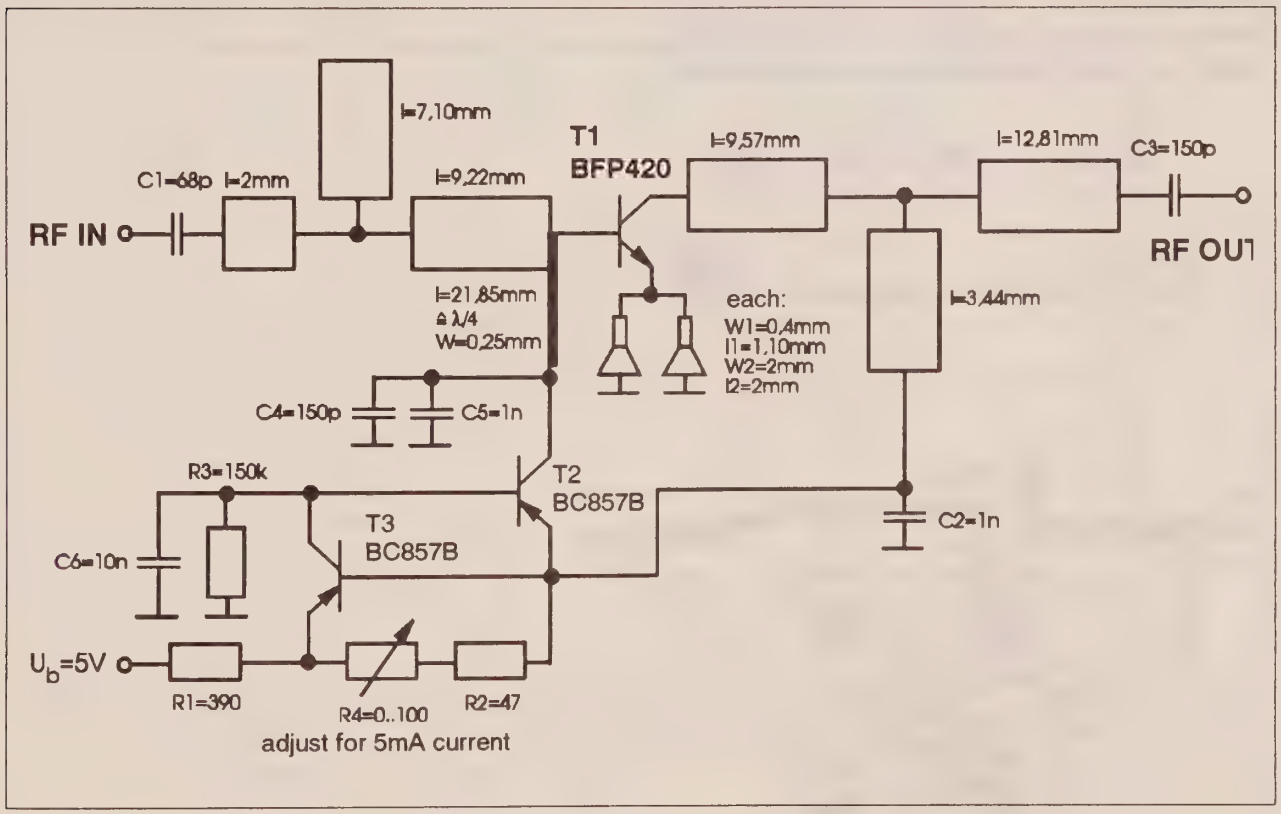
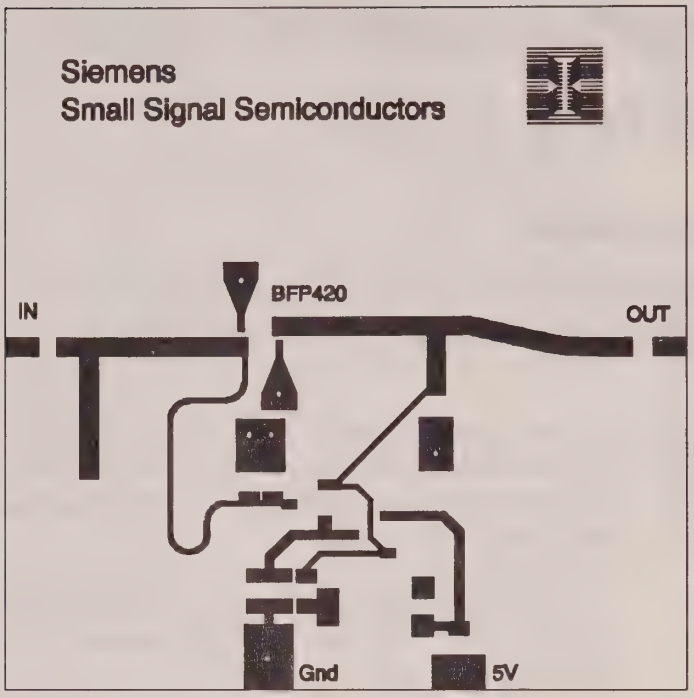



**Fig. 1: Circuit Diagram**

**Figure 2: Circuit Layout of LNA**




Scale: 2:1 (40mm x 40mm real size):

Figure 3 shows the mounting plan of the parts:

Table 1 lists all used SMD components:

## Deutsch:

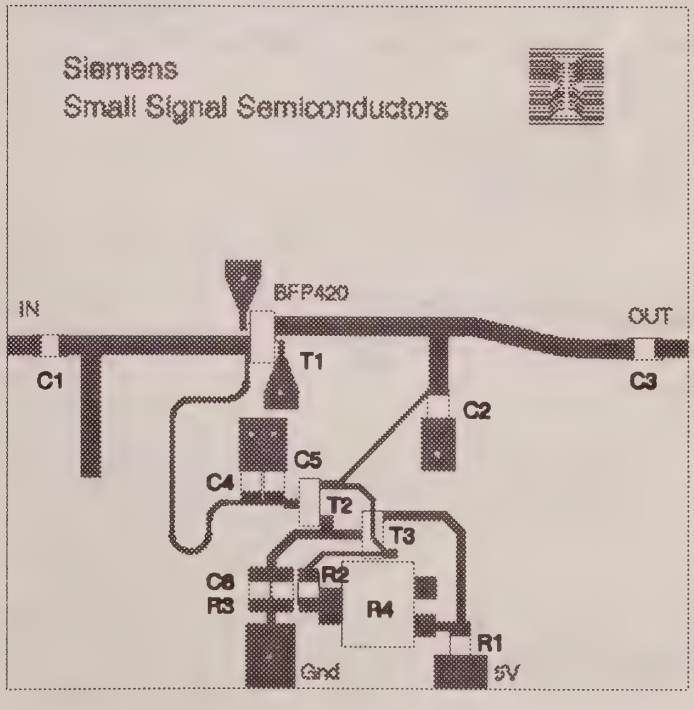
Die neue Serie von Siemens SIEGET Transistoren erlaubt u.a. die Konstruktion von rauscharmen Verstärkern im 2,4 GHz Band. Folgende Werte wurden erzielt:

- Verstärkung: 13,6 dB
- Rauschzahl: 1,4 dB auf 2,4 GHz
- Stabilität: Absolut stabil auf allen Frequenzen.

Um eine gute Rückflußdämpfung am Ein- und Ausgang zu erzielen und um absolute Stabilität zu erreichen, wird eine zusätzliche Emitterinduktivität vorgesehen, die eine Gegenkopplung bewirkt. Das führt auch zu einer Reduzierung der Verstärkung. Ohne die Gegenkopplung wäre die Verstärkung ca. 17 dB. Die Rauschzahl wird von der Gegenkopplung nicht beeinflußt.

Zur Arbeitspunkteinstellung wird eine Schaltung mit zwei Transistoren benutzt. Diese wirkt als eine temperaturstabile Stromquelle mit dem HF-Transistor als Stellglied. Abb. 1 zeigt die Schaltung. Die gedruckte Schaltung auf 0,38 mm dickem PTFE-Material wird in Abb. 2 gezeigt. Die Anordnung der teile auf der Platine zeigt Abb. 3.

**Figure 3: Parts Layout of LNA**



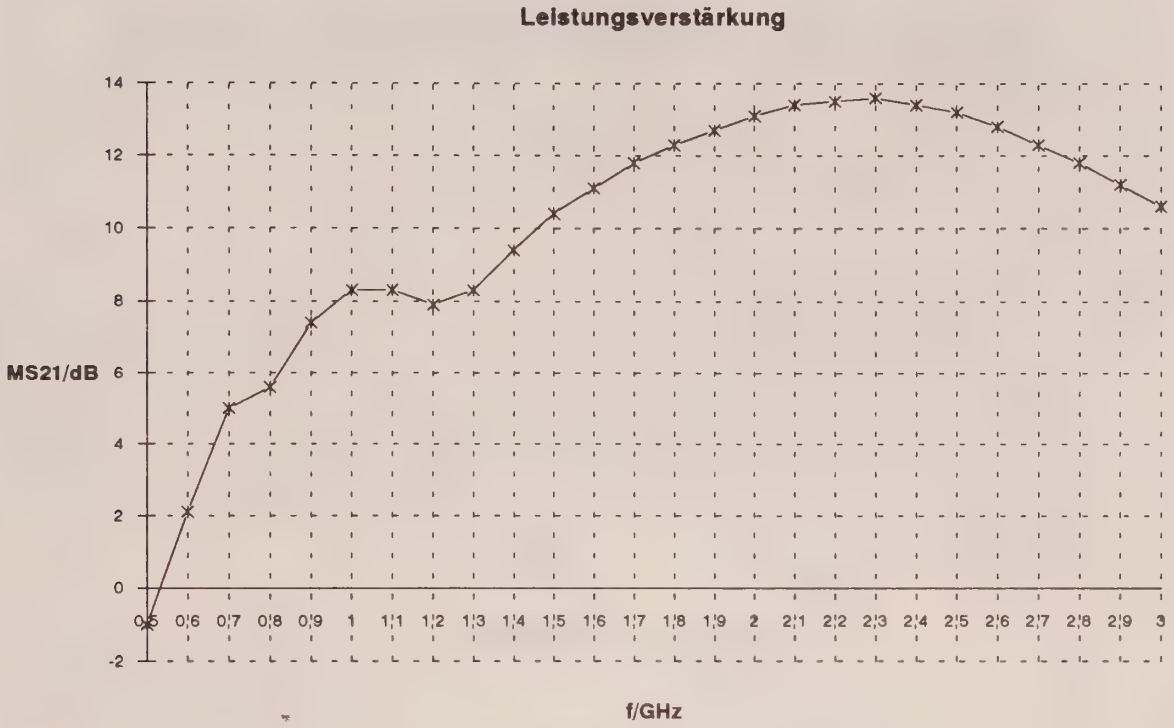



**Fig. 4: Power Gain versus F**

| Name | Type, Package, (Supplier) |
|---|---|
| C1 | 68pF 0805 (S+M) |
| C2 | 1nF 0805 (S+M) |
| C3 | 150pF 0805 (S+M) |
| C4 | 150pF 0805 (S+M) |
| C5 | 1nF 0805 (S+M) |
| C6 | 10nF 0805 (S+M) |
| R1 | 390Ω 0805 (S+M) |
| R2 | 47Ω 0805 (S+M) |
| R3 | 150kΩ 0805 (S+M) |
| R4 | 0...100Ω Trimmer (Beckman) |
| T1 | BFP 420 SOT343 (Siemens) |
| T2 | BC 857B SOT23 (Siemens) |
| T3 | BC 857B SOT23 (Siemens) |

**Tabl 1: Parts List**

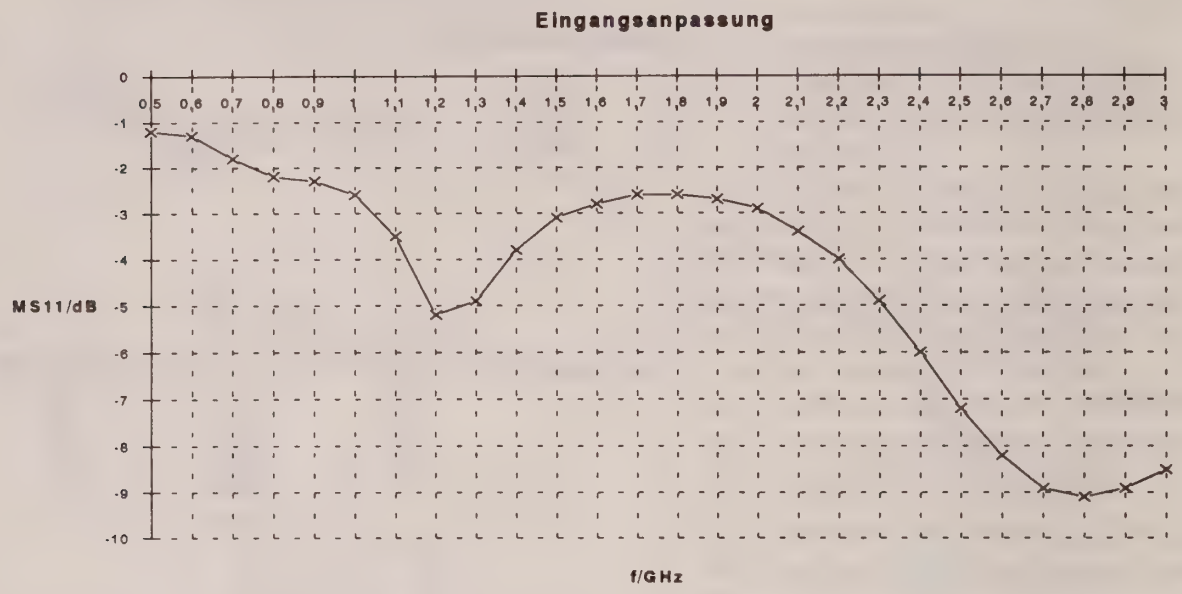



**Fig. 5: S11 versus F**

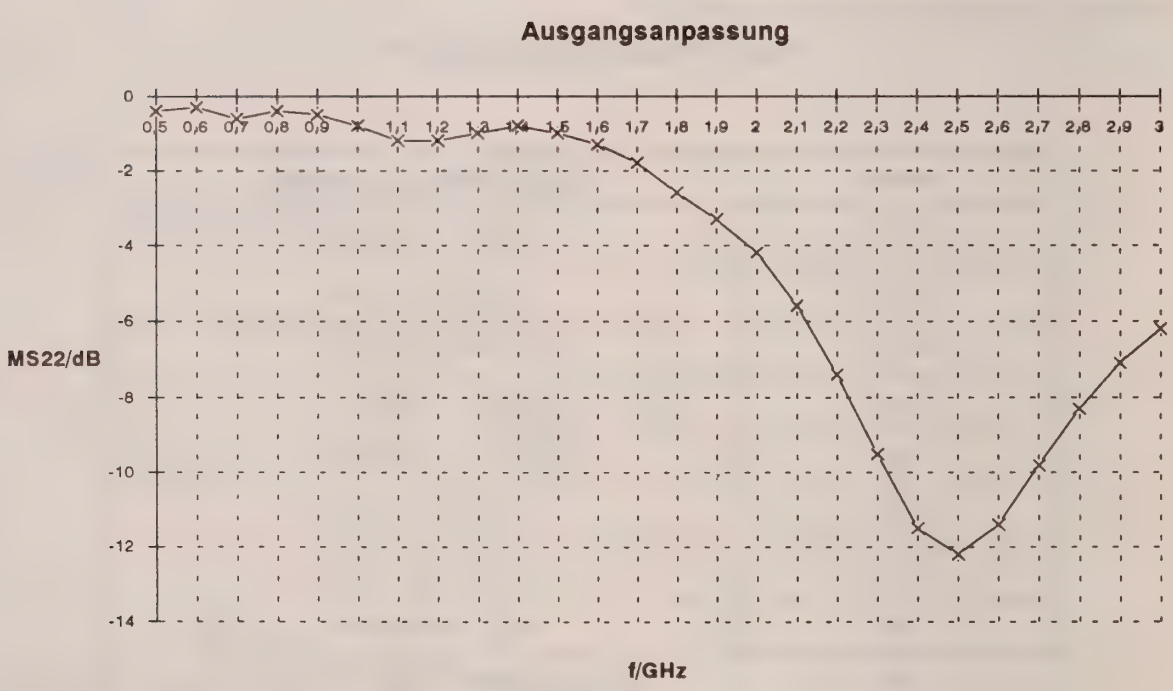



**Fig. 6: S22 versus F**

| f/GHz | 1.0 | 1.1 | 1.2 | 1.3 | 1.4 | 1.5 | 1.6 | 1.7 | 1.8 | 1.9 | 2.0 | 2.1 | 2.2 | 2.3 | 2.4 | 2.5 | 2.6 | 2.7 | 2.8 | 2.9 | 3.0 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| F/dB | 1.4 | 1.4 | 1.6 | 1.5 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.5 | 1.5 | 1.5 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.5 | 1.6 |

**Tabl. 2: Measured Noise Figure @ F**

# Part Lists for PHEMT Preamps

*R. Bertelsmeier, DJ9BV*

There were lots of enquiries about the parts lists for the PHEMT-Preamps described in DUBUS 1/1995. Just read the circuit diagrams in DUBUS 1/1995, p. 34, 38 and 42 together with the diagram of the bias circuit .

Wegen der vielen Anfragen nach den Teilelisten für die in der DUBUS 1/1995 breschriebenen PHEMT-Vorverstärker, werden diese nun nachgereicht. Die Schaltpläne sind in DUBUS 1/1995, S. 34, 38 und 42.

**On Board Bias Circuit**

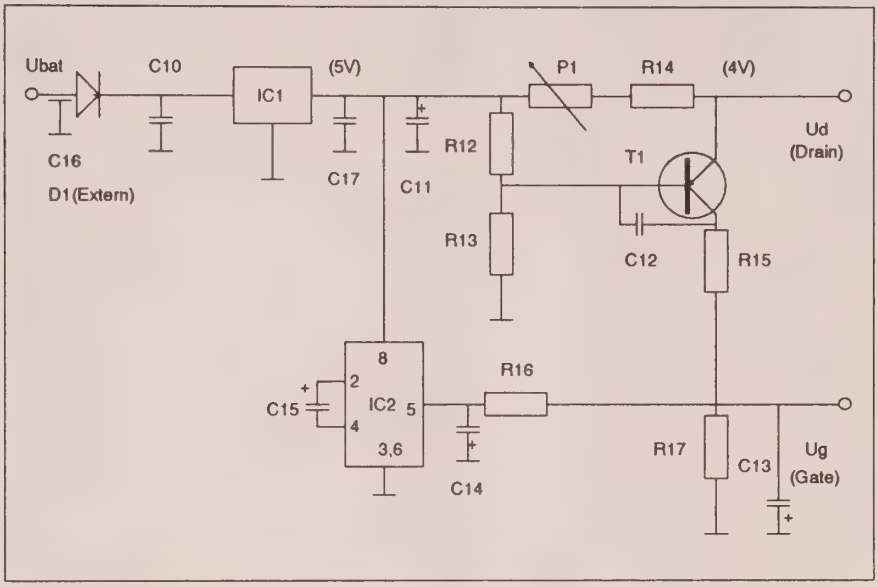



**Table 1: Parts List of LNAH-5.7-N324**

| Teile-Nummer/Part-No. | Art/Sort | Wert/Value | Hersteller/ Manufacturer | Herst.-Bez./Manuf.-No. |
|---|---|---|---|---|
| C1,3 | SMD-C | 100pF | Sie | |
| C2,4 | SMD-C | 1000pF | Sie | 0805 |
| C5 | Chip-C 50mil | 1 pf (500 CHA 1R0 JG) | Tekelec | CHA |
| R1 | SMD-R | 47 | Sie | 1206 |
| R2 | SMD-R | 100k | Sie | 1206 |
| R3 | SMD-R | 4R7 | Sie | 1206 |
| R4 | SMD-R | 22 | Sie | 1206 |
| FET | GaAs-FET | NE32684 | NEC | |
| Bu1,2 | Coaxial | SMA | Radiall/Suhner | |
| PCB | Teflon PCB, Duroid 5870 | mm, 0.508 mm, Er=2.3, - LNAH-5.7-N326 | DC3XY | |
| G | Box, Aluminium | 35x74x30 mm | | |

**Table 2: Parts List LNAH-2.3-N424/M865**

| Teile-Nummer/Part-No. | Art/Sort | Wert/Value | Hersteller/Manufacturer | Herst.-Bez./Manuf.-No. |
|---|---|---|---|---|
| C1 | Chip-C 50mil | 4.7pf (500 CHA 4R7 JG) | Tekelec | CHA |
| C2,3,6 | SMD-C | 100 pF | Sie | 0805 |
| C4 | SMD-C | 5.6 pF | Sie | 0805 |
| C7,8,19 | SMD-C | 1000 pF | Sie | 0805 |
| C9,18,20 | SMD-C | 10 nF | Sie | 0805 |
| C10,12,17 | SMD-C | 0.1 µF | Sie | 1206 |
| C11,14,15 | SMD-Elco | 10 µF | Sie | 1210 |
| C13 | SMD-Elco | 1 µF | Sie | 1206 |
| C16 | Feed-Thr. | 1000 pF | Sie | |
| R1,3 | SMD-R | 47 Ω | Sie | 1206 |
| R2,14 | SMD-R | 39 Ω | Sie | 1206 |
| R4,5 | SMD-R | 10 Ω | Sie | 1206 |
| R12 | SMD-R | 6.8 kΩ | Sie | 1206 |
| R13,15 | SMD-R | 10 kΩ | Sie | 1206 |
| R16,17 | SMD-R | 22 kΩ | Sie | 1206 |
| P1 | SMD-Pot | 100 Ω | Murata | 4310 |
| Dr.1 | Printed | $\lambda/4$ | | |
| L1 | Wire Loop | 0.5 mmCuAg, 18 mm long, 1 mm above PCB | Homemade | |
| L2 | Wire Loop | 0.5 mmCuAg, 8 mm long, on PCB | Homemade | |
| D1 | Diode | 1N4007 | Mot | |
| FET | GaAs-FET | NE42484A | NEC | |
| MMIC | GaAs-MMIC | MGA-86576 | HP | |
| T1 | PNP | BC807,856,857,858,859 | Sie | SOT-23 |
| IC1 | Regulator | uA7805A | Mot | TO-92 |
| IC2 | Inverter | LTC1044SN8 (ICL7660SN8) | LT (Intersil) | SO8 |
| Bu1,2 | Coaxial | N-Small Flange or SMA | Radiall/Suhner | |
| PCB | Teflon PCB, Taconix TLX | 35 x 72 mm, 0.79 mm, Er=2.55, -LNAH-2.3-N424 | DC3XY | |
| G | Box, Weißblech (Tinplate) | 35x74x30 mm | | |

All Parts except D1, C20 and uA7805A are SMD-Parts

**Table 3: Parts List of LNAH-3.4-N424/865**

| Teile-Nummer/Part-No. | Art/Sort | Wert/Value | Hersteller/Manufacturer | Herst.-Bez./Manuf.-No. |
|---|---|---|---|---|
| C1 | Chip-C 50mil | 1 pf (500 CHA 1R0 JG) | Tekelec | CHA |
| C2,3 | SMD-C | 1.5 pF | Sie | 0805 |
| C4 | SMD-C | 1.8 pF | Sie | 0805 |
| C6 | SMD-C | 100 pF | Sie | 0805 |
| C7, 8, 19 | SMD-C | 1000 pF | Sie | 0805 |
| C9, 18, 20 | SMD-C | 10 nF | Sie | 0805 |
| C10, 12, 17 | SMD-C | 0.1 µF | Sie | 1206 |
| C11, 14, 15 | SMD-Elco | 10 µF | Sie | 1210 |
| C13 | SMD-Elco | 1 µF | Sie | 1206 |
| C16 | Feed-Thr. | 1000 pF | Sie | |
| R1 | SMD-R | 47 Ω | Sie | 1206 |
| R2 | SMD-R | 33 Ω | Sie | 1206 |
| R3 | SMD-R | 22 Ω | Sie | 1206 |
| R4,5 | SMD-R | 10 Ω | Sie | 1206 |
| R12,13,15 | SMD-R | 10 kΩ | Sie | 1206 |
| R14 | SMD-R | 68 Ω | Sie | 1206 |
| R16,17 | SMD-R | 22 kΩ | Sie | 1206 |
| P1 | SMD-Pot | 100 Ω | Murata | 4310 |
| L1 | Wire Loop | 0.25 mmCuAg, 9 mm long, 1 mm above PCB | Homemade from Wirewrap | |
| L2 | Wire Loop | 0.25 mmCuAg, 3.5 mm long, on PCB | Homemade from Wirewrap | |
| D1 | Diode | 1N4007 | Mot | |
| FET | GaAs-FET | NE42484A | NEC | |
| MMIC | GaAs-MMIC | MGA-86576 | HP | |
| T1 | PNP | BC807,856,857,858,859 | Sie | SOT-23 |
| IC1 | Regulator | uA7805A | Mot | TO-92 |
| IC2 | Inverter | LTC1044SN8 (ICL7660SN8) | LT (Intersil) | SO8 |
| Bu1,2 | Coaxial | SMA | Suhner/Rosenberger | |
| PCB | Teflon PCB, Taconix TLX | 34 x 72 mm, 0.79 mm, Er=2.55, -LNAH-3.4-N424 | DC3XY | |
| G | Box, Aluminium, Machined | 34x72x30 mm | DC3XY | |

All Parts except D1, C20 and uA7805A are SMD-Parts

# Computer News

Editor: Gerold Bächle, DF5GX

# "HornCalc V2.50"

Arnold Tibus, DK2WT and Stefan Tibus, DG2GTS

## Kurzbeschreibung

HornCalc ist ein Programm für Windows 3.1 und erlaubt die schnelle Dimensionierung eines Pyramiden-Horns bei Erfüllung folgender Bedingungen:

- Es ist ein 'Optimum' -Horn, d.h. die Aperturdimension ist so gewählt, daß bei gegebener Höhe der Pyramidendreiecke maximaler Gewinn erreicht wird.
- Die E-und H-Feld 3dB Öffnungswinkel sind in etwa gleich.
- Der spezifizierte Gewinn wird bestmöglich erreicht. Die Genauigkeit bzw. Abweichung vom Realwert liegt bei wenigen zehntel dB!
- Das Horn paßt genau auf einen beliebig spezifierten Hohlleiter (standardmäßig werden Innenmaße verwendet).

## Entstehung

Das Programm in seiner Urform wurde von DK2WT, Arnold Tibus, entwickelt und existiert seit 1985. Diese neue Version für Windows 3.1 für IBM comp. PCs wurde weiterentwickelt und von DG2GTS, Stefan Tibus, in Borland Pascal programmiert und um die graphische Darstellung erweitert. Gegenüber der Vorgängerversion 2.0a erlaubt die Version 2.5 das freie Drehen des Horns im 3-dimensionalen Raum. Obwohl es bei dieser Anwendung keine Rolle spielt, wird auch die Dämpfung im Hohlleiter in dB/m errechnet.

Die Steuerung der Drehung im 3-dimensionalen Raum erfolgt in der Vollbild-Ansicht über verschiedene Rollbalken, die sowohl mit der Maus, als auch mit der Tastatur bedient werden können. Selbst Einsteigern soll mit diesem Programm ein Werkzeug in die Hand gegeben werden, sich auch auf diesem Gebiet erfolgreich experimentell betätigen zu können.

## Bemerkungen zum Aufbau

Wichtig zu erwähnen ist, daß natürlich die Präzision und die saubere Verarbeitung eine große Rolle spielt, will man die errechneten Werte auch in der

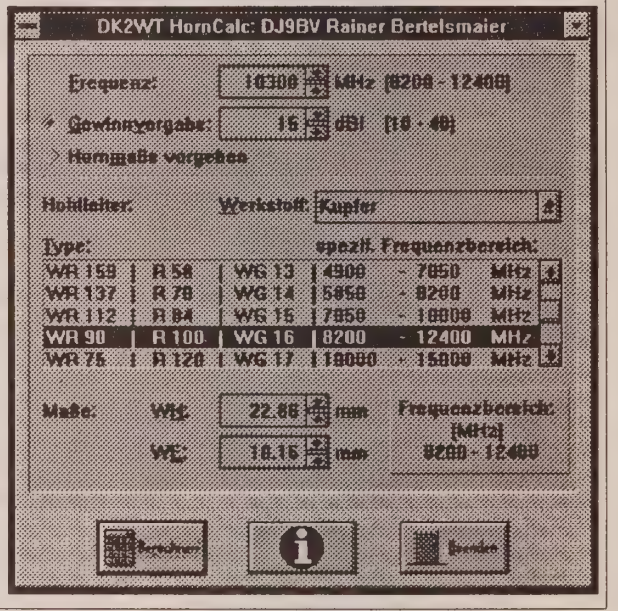



Abb./Fig.1

DK2WI HornCalc DUBUS Reiner Bertelsmaier
HornCalc - Ergebnisse
Zurück
Tabelle Speichern
Drucken
Hornmaße (innen):
Aperturmaße: Seite a= 77.04 mm
Seite b= 56.96 mm
Trapezhöhen: zur Seite a= 44.06 mm
zur Seite b= 46.13 mm
Seitenlänge: s= 51.73 mm
Hornlänge: Lh= 37.34 mm
Hohlleiter:
Type: WR 90 / R 100 / WG 16
Werkstoff: Kupfer
Breite (innen): WH= 22.86 mm
Höhe (innen): WE= 10.16 mm
Länge (innen): L= 47.18 mm
Strahlerabstand: λ WL= 9.44 mm
elektrische Werte:
Frequenz: f= 10.300 GHz
Gewinnvorgabe: gd= 15.00 dBi
Gewinn berechnet: g= 15.10 dBi
Wellenlänge (HL): WL= 37.74 mm
Dämpfung (HL): d= 0.106 dB/m
Gesamtansicht:
Abwicklg. H-Ebene:
WH
WE
L
¼ Wl. Rad. Pos.
a
s
Abwicklg. E-Ebene:
WE
L
s
b

**Abb./Fig.2**

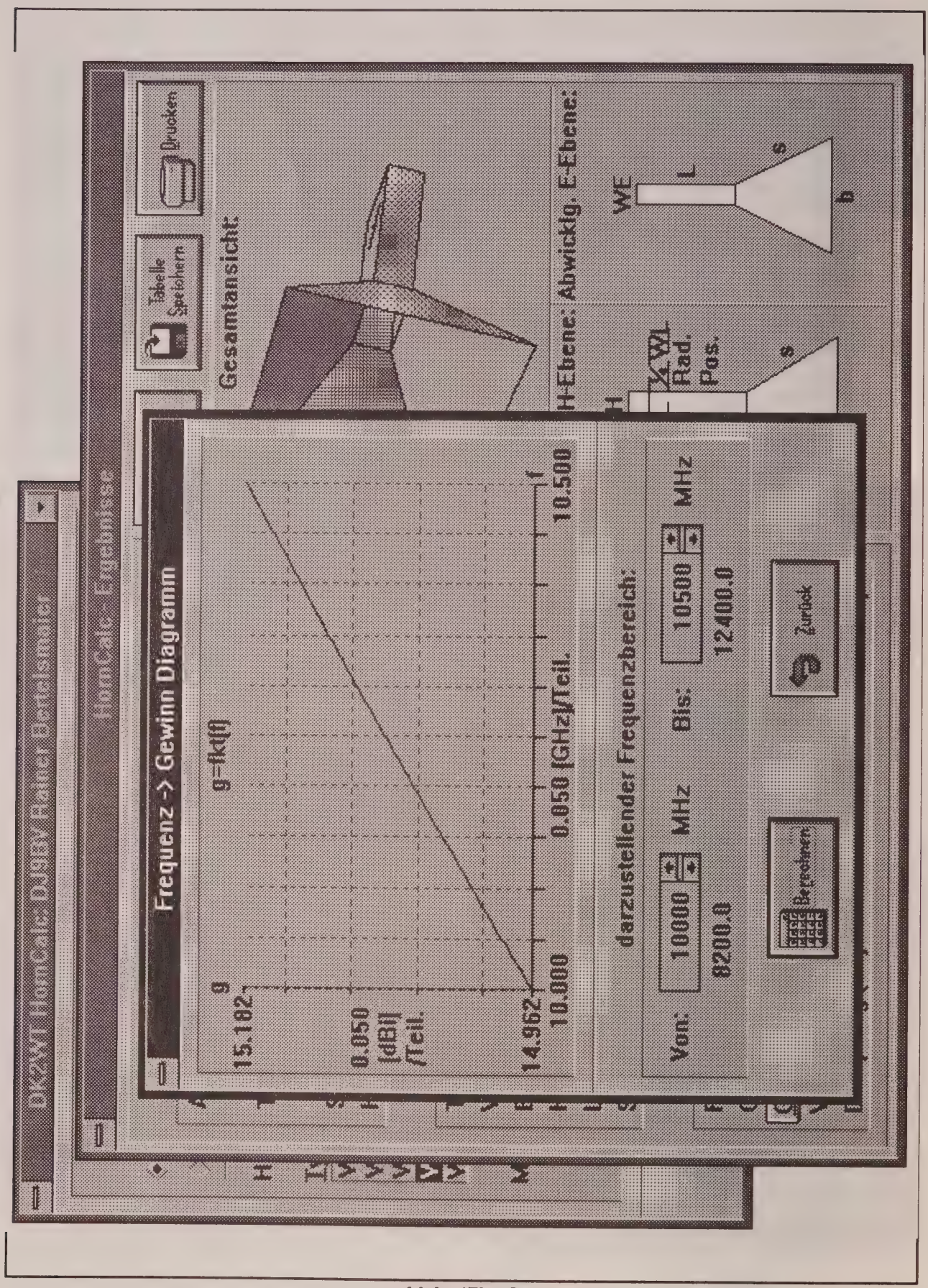
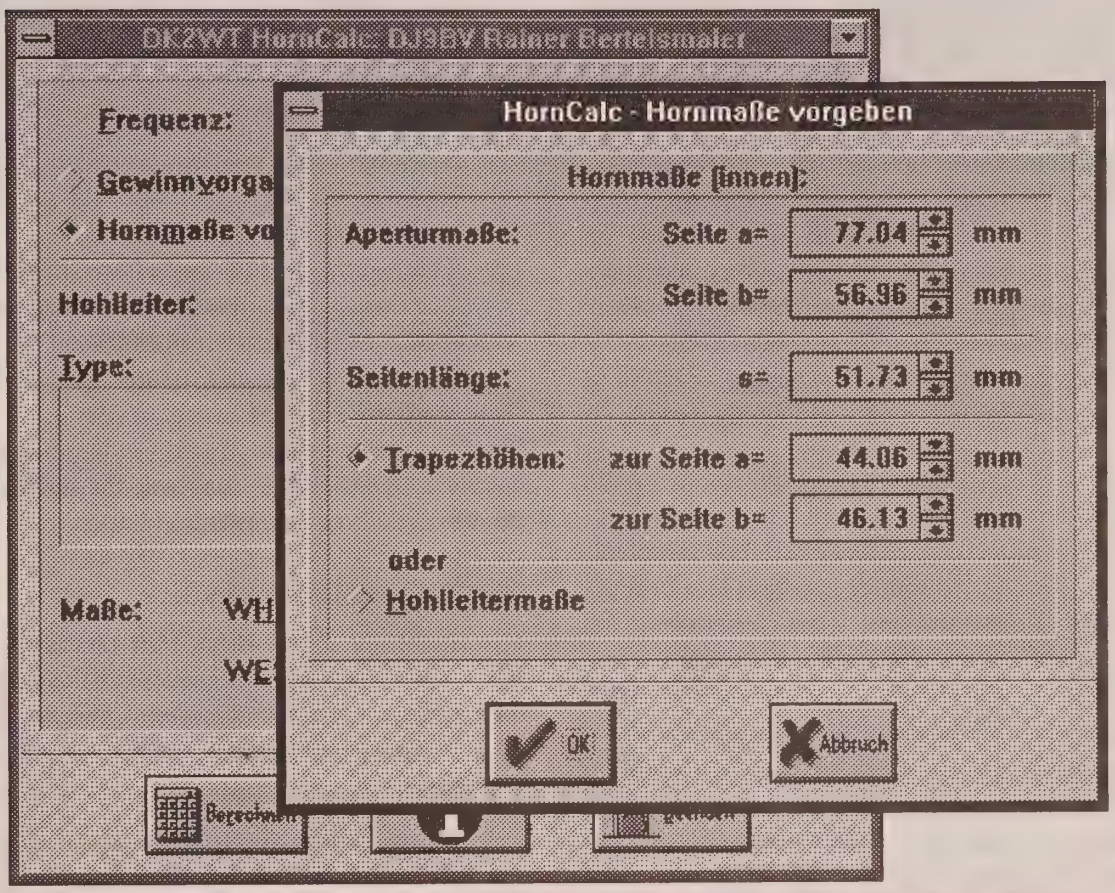

DK2WT HornCalc DJ9BV Rainer Bedrich
HornCalc - Ergebnisse
Tabelle Speichern
Drucken
Gesamtansicht:
H-Ebene: Abwicklg. E-Ebene:
WE
L
s
b
Rad.
Pos.
Frequenz -> Gewinn Diagramm
g=fk(f)
g
15.182
0.050
[dB]
/Teil.
14.962
10.000
0.050 [GHz]/Teil.
10.500
darzustellender Frequenzbereich:
Von:
10000
MHz
Bis:
10500
MHz
8200.0
12400.0
Berechnen
Zurück

**Abb./Fig.3**

**Abb./Fig.4**



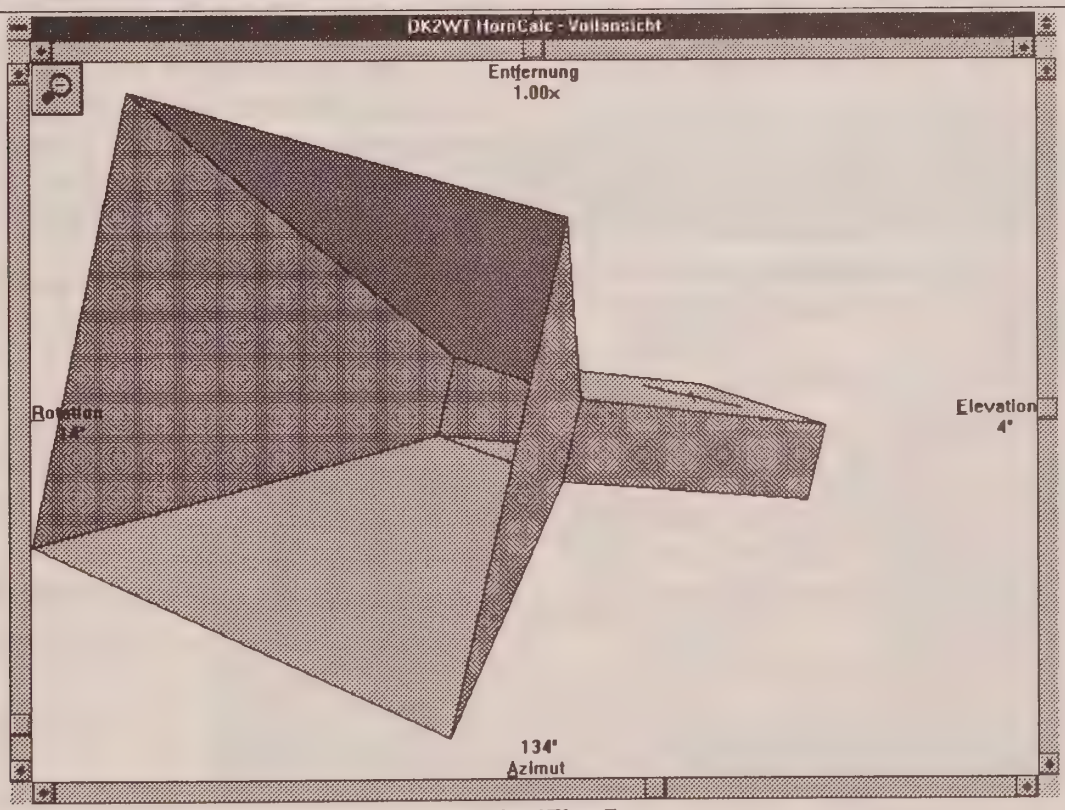




**Abb./Fig.5**

Praxis erreichen. Beim Material wird davon ausgegangen, daß zumindest die Oberflächen verkupfert sind, eine Versilberung ist nicht vonnöten ( 'nice to have' ). Der Einfachheit halber wird man wohl besser gleich zu Kupferblech greifen, wie es z.B. die Flaschner verwenden.

Die Position des Strahlers im Hohlleiter ist angegeben und liegt bei 1/4 der Wellenlänge im Hohlleiter vom Hohlleiterabschluß. Der Strahler ist nicht kritisch. Für Versuche kann man einfach ein Kupferröhrchen über den Innenkontakt einer Koaxflanschbuchse schieben und sauber verlöten. Die Länge liegt bei Standardabmessungen der Hohlleiter bei ca. 0.5*Seitenlänge von WE ( E-Feld ).

Damit der Strahler nicht 'gesehen' werden kann und auch der Hohlleiter nicht in Resonanz kommt, wird eine Länge von 1,25 Lambda (Hohlleiterwellenlänge) für den Hohlleiter gewählt. Die Befestigung des Koaxflansches kann zumindest bei großen Hohlleitern (Wellenlänge 13cm ) ohne große Einbußen auch mit Kupfer-/Messingschrauben erfolgen, wobei dann allerdings der Schraubenkopf im Hohlleiter liegen soll, da generell die Regel gilt, daß keine Fremdkörper, schon gar keine metallenen, etwas im Hohlleiter zu suchen haben. Besser ist es, den Flansch auf der Außenseite aufzulöten, was aber nur mit einem großen Lötkolben der Kategorie 120W und guter Lötpraxis gelingt.

Daß alle Flächen des Horns und auch des Hohlleiters elektrisch und mechanisch eine gute Verbindung untereinander brauchen, dürfte wohl klar sein. Bei gelöteten Verbindungen sollte möglichst kein Zinn auf den Innenflächen zu sehen sein, da Zinn für Mikrowellen eine große Dämpfung aufweist.

## Bezugsquelle

Das Programm kann unter Angabe von Rufzeichen, Name und Adresse für nicht-kommerzielle Nutzung für DM 40,- (für kommerzielle Benutzung DM 150,-) inkl. Porto und Versandkosten in DL bezogen werden von:

DK2WT Arnold Tibus
Diamantstr. 7
88048 Friedrichshafen

Die Verfasser sind für Verbesserungsvorschläge dankbar.

## Abstract

HornCalc is a program running with DOS and Windows 3.1 and calculates the mechanical dimensions of an pyramidical horn on following conditions:

- It is an 'optimum'- horn, i.e. the dimension of the aperture is chosen, that you can achieve maximum gain with the given height of the pyramidical triangle.
- The E- and H- 3dB-angles are similar.
- The specified gain will be achieved and differs only a few tenth of dB!
- The horn fits exactly on any specified waveguide.

The program is written in german language, but it is easy to handle. You may ask the author, if he intends to deliver an english version.

## Technical Notes

It is important to mention, that precision and a proper finish are required, to achieve the calculated values in practice. The material should have at least a coppered surface, silver is not really necessary.

Further information about the mechanical realisation you receive together with the program.

## Source of supply

Give details about your callsign, name and address and you can get the program for noncommercial use (40.-DM) or commercial use (150.-DM) incl. postage and transportation costs by:

DK2WT Arnold Tibus
Diamantstr. 7
D-88048 Friedrichshafen

# Microwave Parts

Editor: Rainer Bertelsmeier, DJ9BV

# Product Review: 20 W GaAs-FET Power on 2.3 GHz

R. Bertelsmeier, DJ9BV

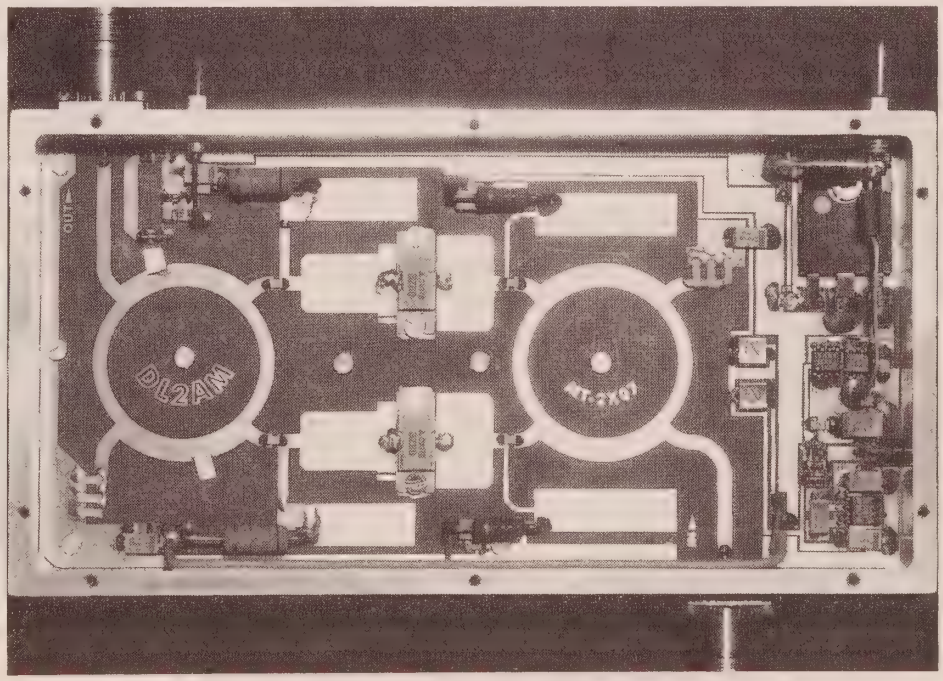
**Kurzfassung:** Der Leistungsverstärker MT-2X7 von Philipp Prinz, DL2AM, ist mit zwei MGF-0907 von Mitsubishi bestückt, die über 3 dB Hybridkoppler verkoppelt eine Ausgangsleistung 23 W bei 1 dB Kompression und 11 dB Verstärkung erreichen. Der Verstärker benötigt eine Betriebsspannung von 12 V und ist in einem gefrästen Aluminiumgehäuse untergebracht.

**Abstract:** The power Amplifier MT-2X7 made by Philipp Prinz, DL2AM, provides a 1 dB compression output power of 23 W on 2.32 GHz with a supply voltage of 12 V and 11 dB gain. It uses two GaAs FETs MGF-0907 from Mitsubishi and is constructed on Teflon board in a machined aluminum box.

## Schaltungsbeschreibung

Zwei Verstärker mit dem MGF-0907 sind über 3 dB Hybride zusammengekoppelt und können damit eine Ausgangsleistung von 23 W auf 2,3 GHz erzeugen.

Die Platine ist aus 0,79 mm starkem RT-5870 Duroid und ist mit Silberleitkleber sowie M2 Schrauben kontaktiert. Ein Ausgangsrichtkoppler liefert eine Gleichspannung als relative Leistungsanzeige. Die Versorgungsspannung beträgt 11,5...15 V. Sie wird intern stabilisiert. Ebenso wird die negative Vorspannung intern erzeugt. Die Schaltung regelt bei Ausfall der negativen Vorspannung her-




13 cm Poweramplifier MT-2x07

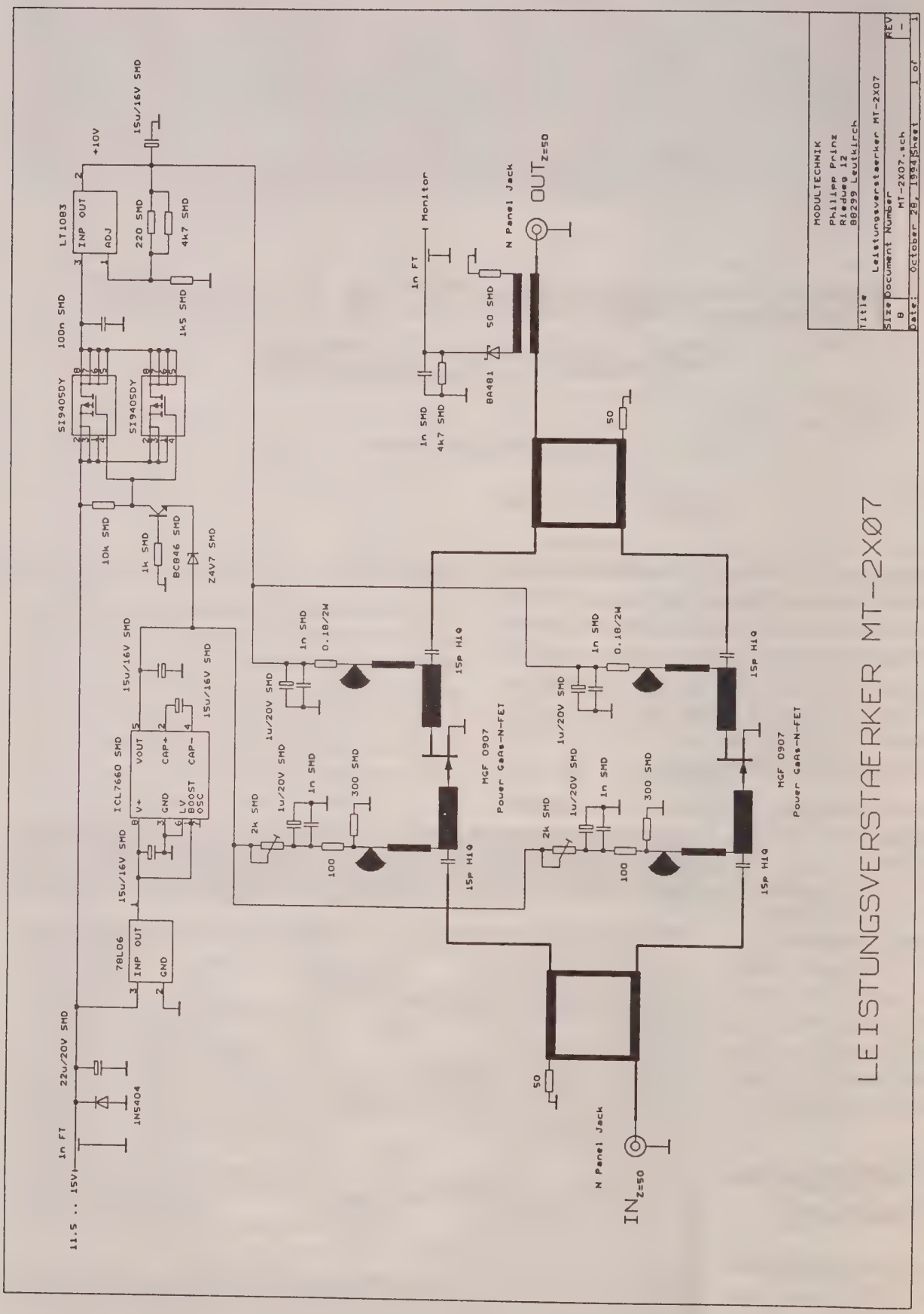
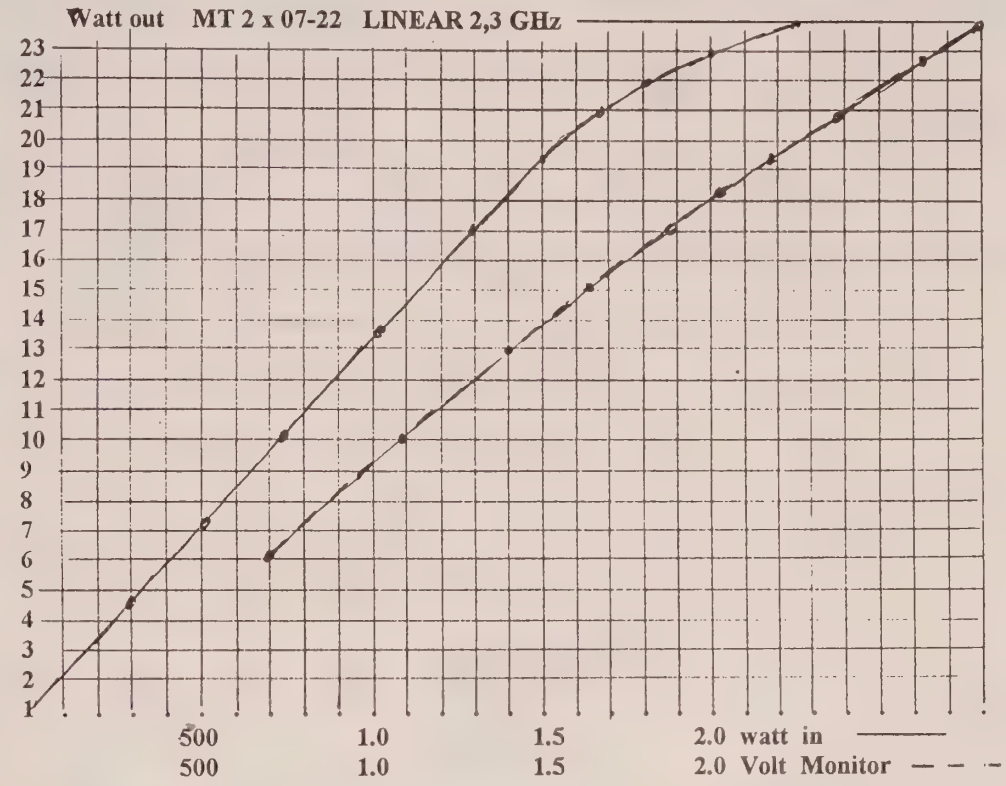



**Fig. 1: 13 cm Poweramplifier MT-2x07: Circuit Diagram**

**Figure 2: Output vs Input Power**




unter[1]. Der Ruhestrom beträgt 5,1 A. Die Abmessungen sind 154x81x28 mm.

## Description

The amplifier is constructed around power GaAs-FETs MGF-0907 from Mistubishi. It provides an output power of 23 W at 1 dB compression.

The PCB is made from 0.79 mm RT-5870 duroid. An integrated directional coupler delivers a power monitoring DC-voltage. Size of the enclosure is 154x81x28 mm. Supply voltage is 11.5...15 V.

| 13 cm Power Amplifier | |
|---|---|
| Devices: | 2xMGF-0907 |
| Supply Voltage: | 11.5...15 V |
| DC-Current: | 5.1 A |
| Gain: | 11 dB |
| Output Power: | 23 W |

Supply current is 5.1 A.. All voltages are stabilised internally. A fail-safe circuit[1] for a missing negative gate supply is provided.

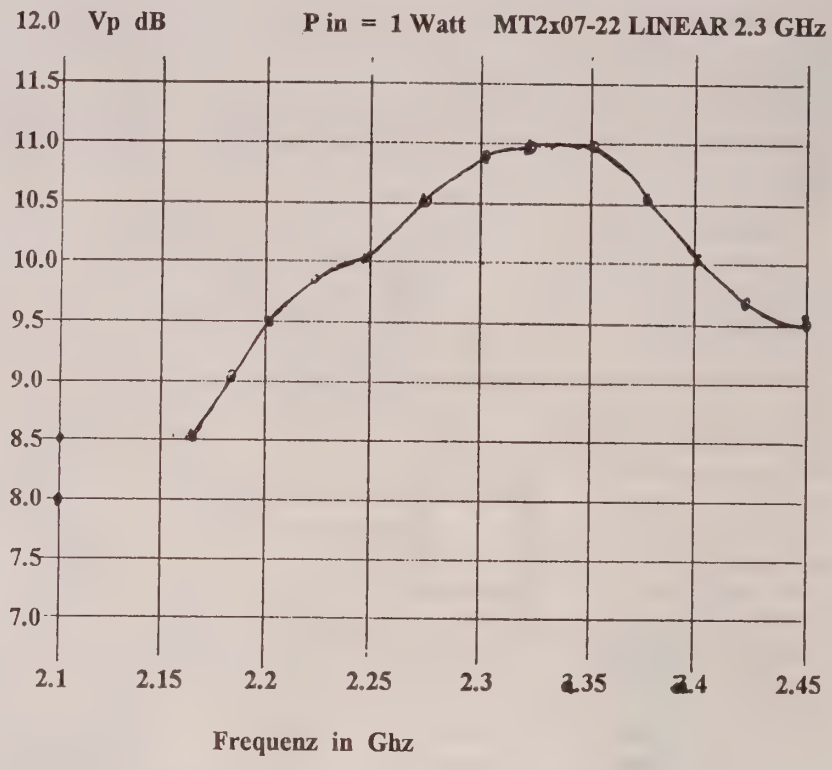
## Parts/Teile

Ready made units and parts can be ordered from Philip Prinz, DL2AM, Riedweg 12, D-88299 Leutkirch 3, Tel.: (++49)-7567-294/Fax: (++49)-7567-1200.

Komplette Verstärker und Teile sind bei Philip Prinz, DL2AM, Riedweg 12, D-88299 Leutkirch 3, Tel.: (++49)-7567-294/Fax: (++49-7567-1200 zu haben.

1 *M. Kuhne, DB6NT, "High Power GaAs-FET Amplifier for 9 cm", DUBUS 2/1991, p.7*

**Figure 3: Gain Versus Freq.**




## New MMICs from Hewlett Packard

**INA-30311**

SOT-143
3 V/6,3mA
Vielseitig einsetzbarer Verstärker mit niedrigem Preis

DC - 1 GHz
12,5 dB Gain(1 GHz)
3,5 dB typ. NF(1 GHz)
$P_{1dB}$ -11 dBm

ab Lager lieferbar!

**INA-50311**

SOT-143
5V/17mA
Vielseitig einsetzbarer Verstärker mit niedrigem Preis

DC - 1 GHz
19 dB Gain(1 GHz)
3,6 dB typ. NF(1 GHz)
$P_{1dB}$ -0 dBm

ab Lager lieferbar!

**INA-51063**

SOT-363(SC-70)
5V/12mA
Vielseitig einsetzbarer Verstärker mit niedrigem Preis

DC - 2,4 GHz
20,9 dB Gain(1 GHz)
3,0 dB typ. NF(1,5GHz)
$P_{1dB}$ -2,5 dBm

ab Lager lieferbar!

**INA-52063**

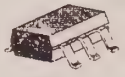
SOT-363(SC-70)
5V/30mA
Vielseitig einsetzbarer Verstärker mit niedrigem Preis

DC - 1,6 GHz
20 dB Gain(1 GHz)
3,5 dB typ. NF(1 GHz)
$P_{1dB}$ +9 dBm

ab Juni lieferbar!

# Low-Cost GaAs MMIC MGA-86563

**MGA-86563** SOT-363(SC-70) 5V/14mA



Low Cost GaAs Gain Verstärker

0,5 - 6 GHz
22,5 dB Gain(2,4 GHz)
1,6 dB typ. NF(2,4GHz)
$P_{1dB}$ +4,2 dBm(2,4GHz)

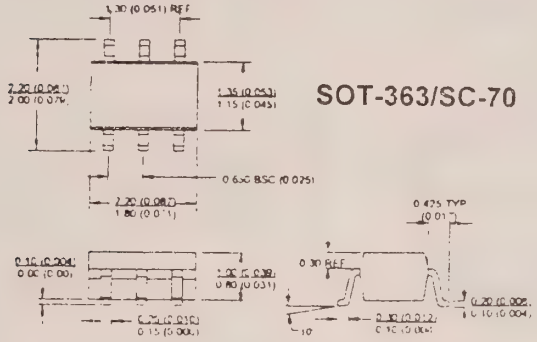
ab Lager lieferbar!

**MGA-87563** SOT-363(SC-70) 3V/4,5mA

Low Cost GaAs Gain Verstärker

0,5 - 4 GHz
12,5 dB Gain(2,4 GHz)
1,6 dB typ. NF(2,4GHz)
$P_{1dB}$ -2 dBm(2,4 GHz)

ab Lager lieferbar!



SOT-363/SC-70

## MGA-86563

PRELIMINARY SPECIFICATION
SUBJECT TO CHANGE

### Features

- Ultra-miniature Package
- Internally Biased, single +5V Supply (14 mA)
- 1.6 dB Noise Figure at 2.4 GHz
- 21.8 dB Gain at 2.4 GHz
- +3.1 dBm $P_{1dB}$ at 2.4 GHz

### Applications

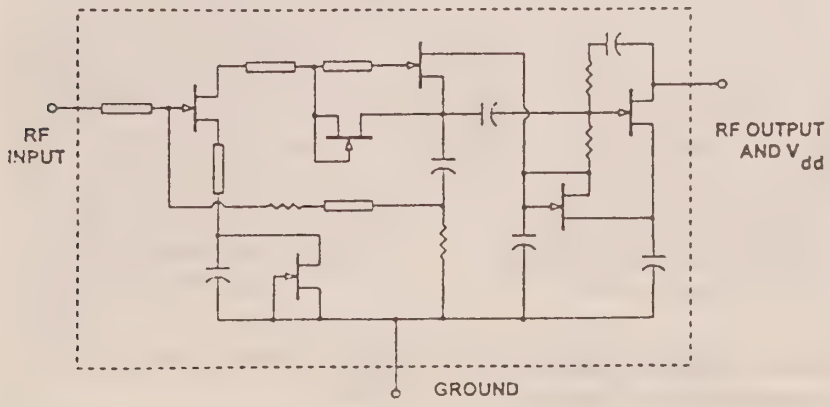
- LNA or Gain Stage for ISM, PCS, MMDS, GPS, TVRO, and other C band Applications

### Surface Mount SOT-363 (SC-70) Package

### Pin Connections and Package Marking

Note: Package marking provides orientation and identification.

### Equivalent Circuit




### Description

Hewlett-Packard's MGA-86563 is an economical, easy-to-use GaAs MMIC amplifier that offers low noise figure and excellent gain for applications from 0.5 to 6 GHz. Packaged in an ultra-miniature SOT-363 package, it requires half the board space of the SOT-143.

The MGA-86563 may be used without impedance matching as a high performance 2 dB NF gain block. Alternatively, with the addition of a simple shunt-series inductor at the input, the device noise figure can be reduced to 1.6 dB at 2.4 GHz. For 1.5 GHz applications and above, the output is well matched to 50 Ohms. Below 1.5 GHz, gain can be increased by using conjugate matching.

The circuit uses state-of-the-art PHEMT technology with self-biasing current sources, a source-follower interstage, resistive feedback, and on chip impedance matching networks. A patented, on-chip active bias circuit allows operation from a single +5 V power supply. Current consumption is only 14 mA, making this part suitable for battery powered applications.

| Frequency | $NF_o$ | $\Gamma opt$ | | $R_N/50\ \Omega$ |
|---|---|---|---|---|
| GHz | dB | Mag. | Ang | - |
| 0.5 | 2.8 | 0.61 | 4 | 1.16 |
| 1.0 | 1.8 | 0.56 | 24 | 0.47 |
| 1.5 | 1.5 | 0.52 | 33 | 0.34 |
| 2.0 | 1.5 | 0.45 | 40 | 0.38 |
| 2.5 | 1.6 | 0.41 | 50 | 0.33 |
| 3.0 | 1.6 | 0.38 | 57 | 0.30 |
| 4.0 | 1.7 | 0.32 | 73 | 0.28 |
| 5.0 | 1.9 | 0.24 | 98 | 0.27 |
| 6.0 | 2.1 | 0.15 | 131 | 0.24 |

PRELIMINARY SPECIFICATION SUBJECT TO CHANGE

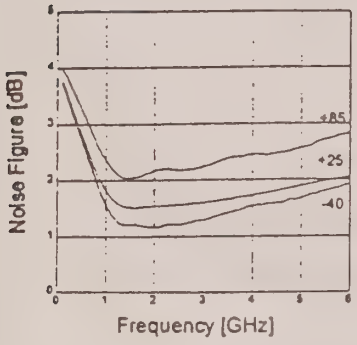



Figure 1. Minimum Noise Figure (Optimum Tuning) vs. Frequency and Temperature.

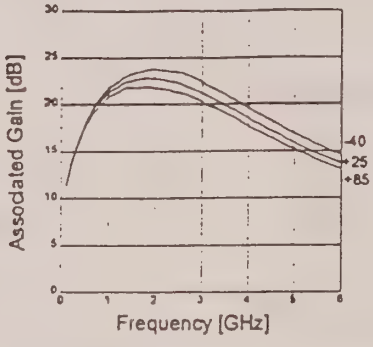



Figure 2. Associated Gain (Optimum Tuning) vs. Frequency and Temperature.

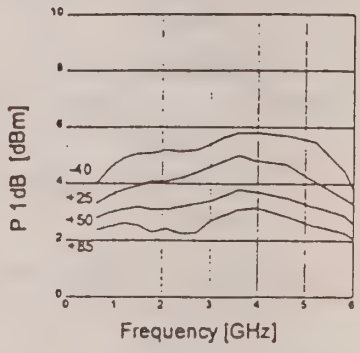



Figure 3. Output Power for 1 dB Gain Compression (into 50 Ω) vs. Frequency and Temperature.

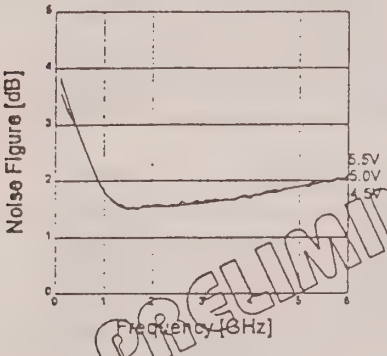



Figure 4. Minimum Noise Figure (Optimum Tuning) vs. Frequency and Voltage.

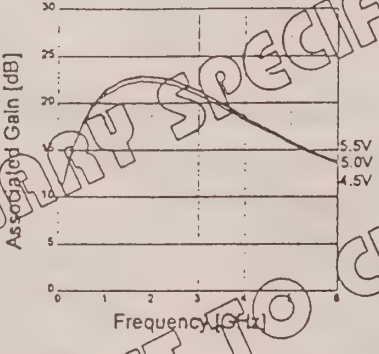



Figure 5. Associated Gain (Optimum Tuning) vs. Frequency and Voltage.

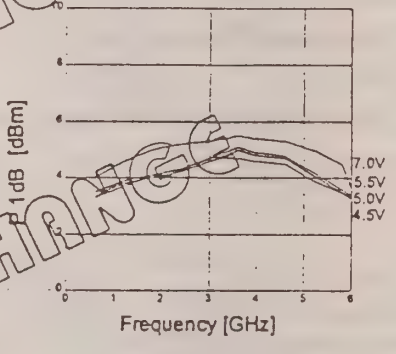



Figure 6. Output Power for 1 dB Gain Compression (into 50 Ω) vs. Frequency and Voltage.

PRELIMINARY SPECIFICATION SUBJECT TO CHANGE

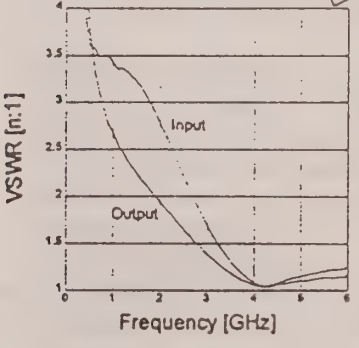



Figure 7. Input and Output VSWR (into 50 Ω) vs. Frequency.

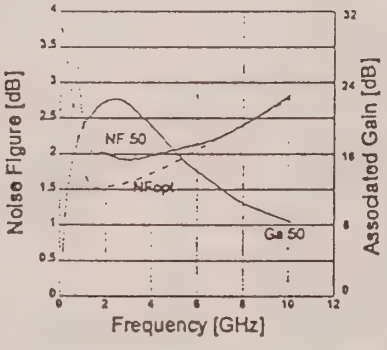



Figure 8. 50 Ω Noise Figure and Associated Gain vs. Frequency.

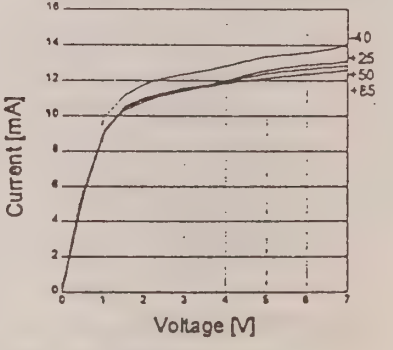



Figure 9. Device Current vs. Voltage.

**Low-Cost Si MMIC INA-51063**

# 2.4 GHz Low Noise Silicon MMIC Amplifier

## Technical Data

INA-51063

PRELIMINARY SPECIFICATION
SUBJECT TO CHANGE

### Features

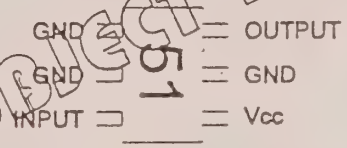
- Ultra-miniature Package
- Internally Biased, Single 5 V Supply (12mA)
- 20.5 dB Gain
- 3 dB NF
- Unconditionally Stable

### Applications

- Amplifier for Cellular, Cordless, Special Mobile Radio, PCS, ISM, Wireless LAN, DBS,TVRO, and TV Tuner Applications

### Surface Mount SOT-363 (SC-70) Package

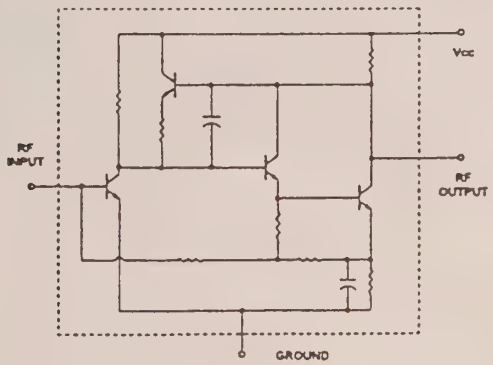
### Pin Connections and Package Marking




Note: Package marking provides orientation and identification.

### Equivalent Circuit

(Simplified)




### Description

Hewlett-Packard's INA-51063 is a Silicon monolithic amplifier that offers excellent gain and noise figure for applications to 2.4 GHz. Packaged in an ultra-miniature SOT-363 package, it requires half the board space of a SOT-143 package.

The INA-51063 uses a topology which is internally biased, eliminating the need for external components and providing decreased sensitivity to ground inductance.

The INA-51063 is fabricated using HP's 30 GHz $f_{MAX}$ ISOSAT™ Silicon bipolar process which uses nitride self-alignment submicrometer lithography, trench isolation, ion implantation, gold metalization, and polyimide intermetal dielectric and scratch protection to achieve superior performance, uniformity, and reliability.

## INA-51063 Typical Performance, $T_C$ = 25°C, $Z_o$ = 50 Ω, $V_{cc}$= 5 V, unless noted

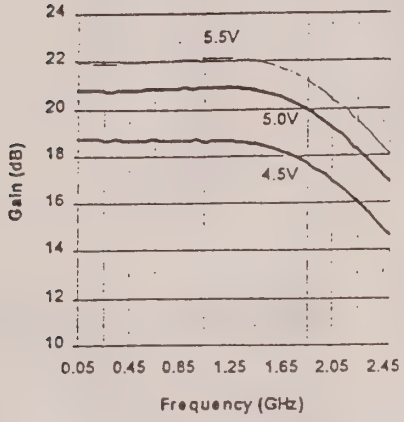



Figure 1. Gain vs. Frequency and Voltage.

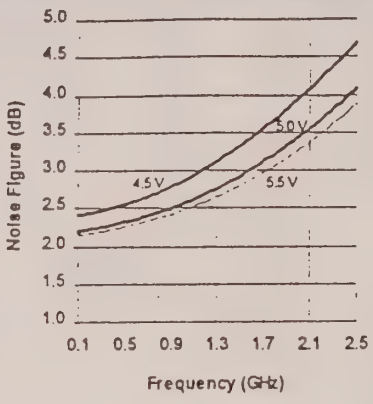



Figure 2. Noise Figure vs. Frequency and Voltage.

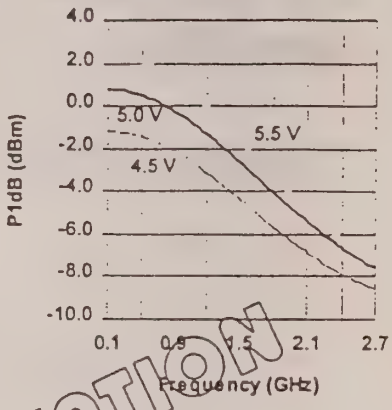



Figure 3. Output Power for 1 dB Gain Compression vs. Frequency and Voltage.

PRELIMINARY SPECIFICATION
SUBJECT TO CHANGE

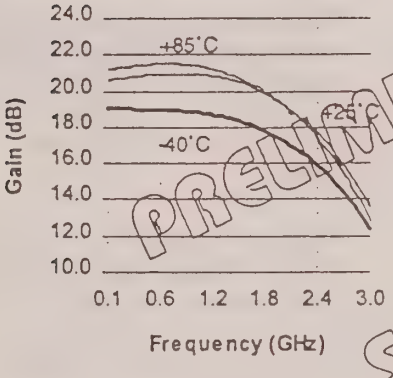



Figure 4. Gain vs. Frequency and Temperature.

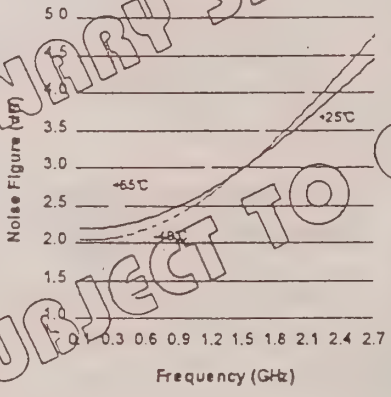



Figure 5. Noise Figure vs. Frequency and Temperature.

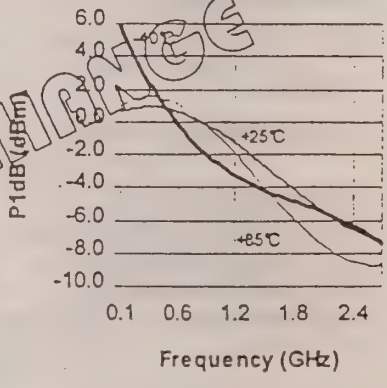



Figure 6. Output Power for 1 dB Gain Compression vs. Frequency and Temperature.

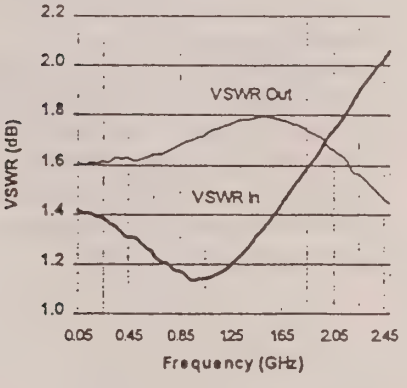



Figure 7. Input and Output VSWR vs. Frequency.

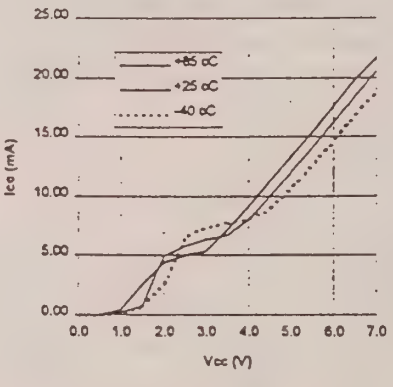



Figure 8. Supply Current vs. Voltage and Temperature.

# Microwave Europe

Editor: John Sørensen, OZ1IPU

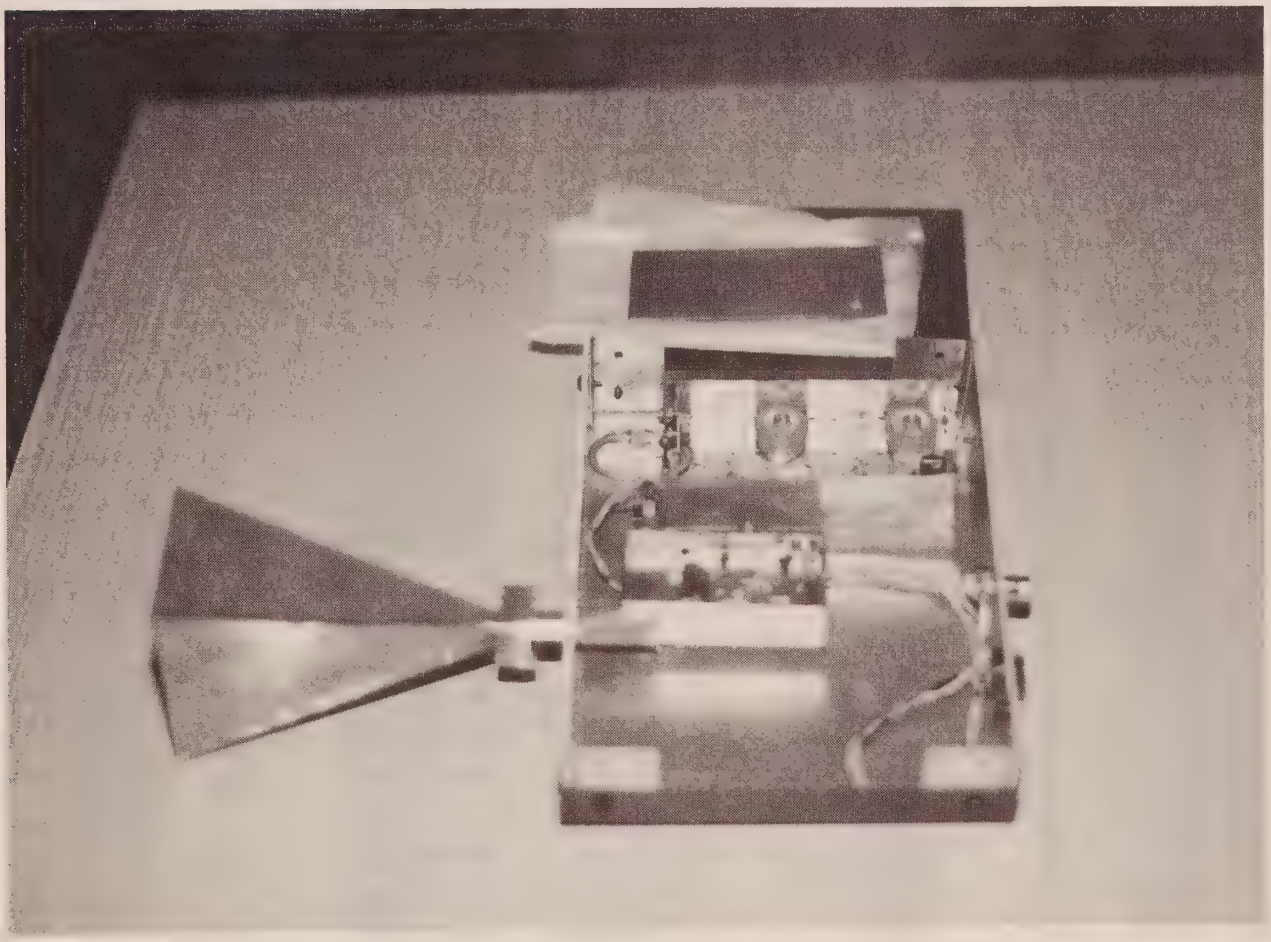
There not many reports over the quarter. I take the opportunity, to publish the Microwave address list.

## 47 GHz

DB6NT/p and OK1AIY/P made the first QSO on 47 GHZ between OK and DL. In fact the QSO took place at the customs in Asch. The distance was only some hundred meters. There was no line of sight however. After crosstalk on 2 m, the QSO on 47 GHz succeeded immidiately. The transverter used were of the subharmonic mixer type, with about 100 uW output and 25 cm dishes from PROCOM.

**73 John OZ1IPU**

## 24 GHz Transverter from CT1DMK



**The CT Gang(l. to r.): CT1FAK, CT1EEB, CT1AL, CT1WW, CT1DMK**

# Microwave Address List

| No. | Call | BAND | WW | PWR | ANT | Name | Telephone | Remark | Update |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 2E1AJE | X | JO02.. | | | Sarah | | at G4DDK | 9402 |
| 2 | 2E1AVS | X | | | | | | | 9301 |
| 3 | 9A2EY | X | JN57XV | .2 | .3 | ulip | | | 9410 |
| 4 | 9H1BT | X | JM75.. | | | | | | 0 |
| 5 | DA4RG/P | X | JO60VP | .12 | .6 | | | | 0 |
| 6 | DB1BX | X | JO32OT | | | RUDI | | | 9307 |
| 7 | DB1DI | X | JO31QX | 1.5 | .4 | Michael | 49-25074121 | | 9410 |
| 8 | DB1VY/P | X | JN39IH | .2 | | Hanspeter | | | 9310 |
| 9 | DB4JK/P | X | JO42ID | | | | | | 9305 |
| 10 | DB5KN | X | | | | MIKE | bei DF9PY | | 0 |
| 11 | DB6NT/A | XKUEPG | JO50SI | 5 | | MICHAEL | 49-9288-8232 | | 9402 |
| 12 | DB7OZ/P | X | JO42UI | | | RUDI | 49-511-492703 | | 0 |
| 13 | DB9JC | X | JO31BT | | | | 49-2821-18494 | | 0 |
| 14 | DC0DA | XKUE | JO31SL | 4 | .8 | JUERGEN | 49-231-460161 | | 9310 |
| 15 | DC3NI | X | JO50TH | .6 | .6 | franz | 49-92891263 | | 9402 |
| 16 | DC4BK | X | JO43LA | | | HANS | 49-4202-6781 | | 9305 |
| 17 | DC4UI | X | JN48CN | | | MANFRED | 49-7271-42425 | | 0 |
| 18 | DC5EO | X | JO31FE | | | Hans | | | 9307 |
| 19 | DC6CM/P | X | JO30QV | | | KLAUS | | | 0 |
| 20 | DC6HZ/P | X | JO30LN | | | | | | 0 |
| 21 | DC6RW | X | JN49HK | | | Udo | 49-6203-46042 | | 0 |
| 22 | DC6TV | X | JO30MT | | | HORST | 49-2208-3995 | | 0 |
| 23 | DC6UW | X | JO44VJ | 20 | 1 | NORBERT | 49-4356-351 | | 9306 |
| 24 | DC7BQ | X | JO30KP | | | WILFRIED | 49-2255-4689 | | 9306 |
| 25 | DC8CE | X | JO44RT | | | HANS | 49-461-62711 | | 0 |
| 26 | DC8EC/P | XK | JN57.. | | | | 49-8104-9495 | dl0nn | 9402 |
| 27 | DC8NV | X | JN58TC | | | LUDWIG | | | 0 |
| 28 | DC8UG | X | JO30UH | | | HARALD | | | 9307 |
| 29 | DC8VJ | X | JO31TO | .2 | .8 | Dietmar | 49-2306-80093 | | 9310 |
| 30 | DC9BU/A | X | JO40XI | | | HEINRICH | | | 9307 |
| 31 | DC9KK | X | JO30NT | | | PETER | 49-2241-42949 | | 9310 |
| 32 | DC9UP | X | JN39TM | 1 | 1.2 | Hermann | 49-63742084 | | 9410 |

| No. | Call | BAND | WW | PWR | ANT | Name | Telephone | Remark | Update |
|---|---|---|---|---|---|---|---|---|---|
| 33 | DC9XG | X | JO43OM | | | HORST | 49-4761-3987 | | 9306 |
| 34 | DD0SB/P | XK | JN48JD | | | | | | 9402 |
| 35 | DD1XF | XK | JO53BO | 1 | .5 | Frank | 49-406428253 | | 9402 |
| 36 | DD9KG | X | JO30NV | | | HOLGER | 49-220314782 | | 0 |
| 37 | DF0OG | X | JO41PU | | | ULI | CONT:05283/615 | | 9310 |
| 38 | DF1EO | X | JO31MD | .25 | .6 | JUERGEN | 49-212333435 | | 9407 |
| 39 | DF1EQ | X | JO31NC | 40mW | .4 | REINHARD | 49-2174-8295 | | 9307 |
| 40 | DF1OI | X | JO42TF | | | Johannes | | | 9306 |
| 41 | DF5SL/P | X | JO40FF | .7 | .7 | RICHARD | 49-711-681902 | | 0 |
| 42 | DF5TC/P | X | JN48JC | | | | | | 0 |
| 43 | DF6IY | X | JN48EU | | | Nobi | 49-704-706 | | 0 |
| 44 | DF6NA | X | JN49WR | | | Rainer | 49-9293-7013 | | 0 |
| 45 | DF6VB | XK | JO31QP | .1 | .4 | ALFONS | 49-2309-1222 | | 9402 |
| 46 | DF7KB | X | JO30QV | | | WOLFRAM | 49-2247-69357 | | 9307 |
| 47 | DF7KF | X | JO30HU | 0.1 | 0.6 | DITHMAR | | | 9310 |
| 48 | DF9CY | X | JO41DX | | | CHRIS | | | 9308 |
| 49 | DF9LN | XKUE | JO31VJ | 5 | .6 | UWE | 49-2372-61405 | | 9402 |
| 50 | DF9QX | X | JO42HD | .2 | .5 | Mathias | 49-5221-66606 | | 9309 |
| 51 | DF9XX | X | JO30.. | | | Rolf | | | 9306 |
| 52 | DF9ZT/P | X | JO40 | | | | | | 9402 |
| 53 | DG0CR/P | | JO50XL | .2 | .7 | bernd | 49-3741-447651 | | 9402 |
| 54 | DG1GLH/P | X | JN48CO | | | Lothar | | | 9310 |
| 55 | DG1KBF | X | JO30QR | | | Hubert | 49-2248-3943 | | 9310 |
| 56 | DG1KDA | X | JO30FQ | | | Alex | | | 9306 |
| 57 | DG2NUD | X | JO63LE | 1 | .5 | Hermann | 49-39828290 | | 9402 |
| 58 | DG4KBV | X | JO30FQ | | | Franz | | | 9306 |
| 59 | DG5MFX | X | JN | .2 | .7 | helmut | 49-8062-9571 | | 9402 |
| 60 | DG7NBE/P | X | JO40XI | | | | | | 0 |
| 61 | DH1SBJ | X | JN48NV | 20 | 30dB | ROLF | 49-7141-604489 | | 9305 |
| 62 | DH6FAE/P | XK | JO40PL | 4 | | Walter | 49-6650-336 | | 9402 |
| 63 | DH6IAL/P | X | JN39TM | | | | | | 9310 |
| 64 | DH9FAH | X | JO40ID | 4 | .6 | thomas | 49-69-521868 | | 9402 |
| 65 | DJ0IX/P | X | JO30MT | .25 | .6 | Ann | | | 0 |
| 66 | DJ1KP | X | JO40JJ | 1 | | Helmut | 49-6036-5640 | | 9402 |
| 67 | DJ1RV | X | JO40FE | 10 | | Heinz | 49-6173-61925 | | 9402 |
| 68 | DJ2DY | X | JN39OI | .15 | .4 | RAINER | 49-6821-53658 | | 9300 |
| 69 | DJ4YJ | X | JN69.. | | | Hans | 49-9427-202 | | 0 |
| 70 | DJ5AP/P | X | JN47AU | | | Gerhard | 49-792^-54135 | | 9402 |
| 71 | DJ5BV | X | JO30MR | 10 | .9 | GERD | 49-228-641130 | | 9307 |
| 72 | DJ5HN | XK | JO40JH | .75 | .6 | ERWIN | 49-6031-61698 | | 9402 |
| 73 | DJ5VW | X | JO31RJ | .2 | .6 | Hagen | | | 9309 |
| 74 | DJ5ZE | XK | JO40IH | .7 | .6 | HERMANN | 49-6031-3510 | | 9402 |
| 75 | DJ6EP | X | JO31JO | 10 | .5 | ROMAN | 49-2134-34201 | | 9402 |
| 76 | DJ6JJ | X | JO31LG | .8 | | HEINO | | | 0 |
| 77 | DJ6TA | X | JO30MS | | | ULI | | | 9310 |
| 78 | DJ6UT/P | X | JO30OX | | | RICHARD | | | 0 |
| 79 | DJ6XV/P | X | JO31MO | .2 | .4 | PETER | 49-2362-62626 | | 9402 |
| 80 | DJ7FJ/P | X | JN47AU | 1.5 | 1 | SEPP | 49-7832-3884 | | 9310 |
| 81 | DJ7GK | XK | JN | | | hans | | | 9402 |
| 82 | DJ8ES | XK | JO43SX | 1.3 | .4 | Wolfgang | 49-48931441 | | 9410 |
| 83 | DJ8QL | X | JN49DX | | | Franz | 49-6131-839138 | | 0 |
| 84 | DJ8UQ | X | ..... | | | | | | 0 |
| 85 | DJ9DW | X | JO40LF | .8 | .6 | Peter | 49-6181-71488 | | 9311 |
| 86 | DJ9VS | XKU | JN49GO | 5 | .6 | HILMAR | 49-6206-58653 | | 9402 |
| 87 | DK0KVG/P | X | JO31HC | | | | | | 9300 |
| 88 | DK0MU | X | JO31QX | | | | | | 0 |
| 89 | DK0NA | XKUEPG | JO50TI | 6 | O.6 | | | | 9402 |
| 90 | DK0OG | X | JN68GI | 15 | .5 | | | | 9306 |
| 91 | DK0PX | X | JN48JC | | | | | | 9310 |
| 92 | DK0TU | X | JO62.. | | | | | | 9209 |
| 93 | DK1KR | X | JO53HW | 6 | .6 | WALTER | 49-4505-700 | | 9410 |
| 94 | DK1PZ | X | JO41TH | .15 | .9 | Heinz | 49-5543-710 | | 9308 |
| 95 | DK1UV | X | JO41CT | 20 | 1.5 | DIETER | 49-25298075 | | 9310 |
| 96 | DK1VE/P | X | JO31VE | | | Dieter | | | 9306 |
| 97 | DK2DB | XK | JN48FW | .65 | .5 | Ewald | 49-721-453126 | | 9307 |
| 98 | DK2GR | X | JN59IE | .2 | .6 | Willi | 49-911-751735 | | 9402 |
| 99 | DK2KA | X | JO30LX | | | Horst | 49-221-1701490 | | 9306 |
| 100 | DK2UO | XK | JO31IA | 2 | | HAJO | 49-2238-42845 | | 9307 |
| 101 | DK3FF/P | X | JO30MT | .25 | .6 | ERNST | | | 9306 |
| 102 | DK3IK | X | JN39JF | | | Volker | | | 9307 |

| No. | Call | BAND | WW | PWR | ANT | Name | Telephone | Remark | Update |
|---|---|---|---|---|---|---|---|---|---|
| 103 | DK3UC | X | JO42WK | 25 | .7 | ULI | 49-511-611703 | | 9310 |
| 104 | DK4GD/P | XK | JN48JC | 4 | | guido | 49-771-5132 | | 9306 |
| 105 | DK5IE | X | JN49EB | .8 | 1.0 | FERI | 49-721-706573 | | 0 |
| 106 | DK5QI | X | JO41KW | | | FRANK | 49-5231-48133 | | 9305 |
| 107 | DK9MN | X | JN58TC | 4 | 0.8 | MANFRED | 49-89-632088 | | 9310 |
| 108 | DL0NN | XK | JN57UU | 20 | | | | dc8ec | 9402 |
| 109 | DL0OW | X | JO41CT | | | | | | 9303 |
| 110 | DL0UD | X | JO31NF | | | | | | 0 |
| 111 | DL0WI | X | JO41CB | | | | | | 0 |
| 112 | DL0WX | X | JO30FQ | | | | | | 9310 |
| 113 | DL1AS/P | X | JN47WO | | | | | | 9305 |
| 114 | DL1BKK | X | JO43NA | | | WERNER | 49-4202-71209 | | 9305 |
| 115 | DL1EBR | X | JO31BS | | | Axel | | | 9300 |
| 116 | DL1JIN | | JO60DJ | .2 | .6 | helmut | 49-37241-23168 | | 9402 |
| 117 | DL1MEZ/A | X | JN57UU | 12 | 1.2 | Sepp | bei DL0NN | | 0 |
| 118 | DL1RQ/P | X | JN69KA | .6 | 1.2 | PETER | 49-9923-567 | | 9307 |
| 119 | DL1SUN | X | JO64 | | | | qrv ?? | | 9311 |
| 120 | DL2AM/P | X | JN.... | 4 | | | 49-7567-294 | | 9402 |
| 121 | DL2NUD | XK | JO63LE | 5 | .85 | Hermann | 49-3982820290 | | 9410 |
| 122 | DL3NQ | X | JN49IN | .5 | 1.6 | DIETER | 49-6201-62432 | | 9310 |
| 123 | DL3YEE | XK | JO42GE | 0.2 | .4 | Klaus | 49-5223-5398 | | 9310 |
| 124 | DL4FBN | X | JO30WC | | | Reinhard | 49-6774-509 | | 0 |
| 125 | DL4OAN/P | X | JO51GO | | .9 | Siggi | 49-5507-7219 | | 9305 |
| 126 | DL4VCG | X | JN39NI | | | FRANK | 49-6824-5537 | | 9310 |
| 127 | DL5KVA | X | JO64CC | .3 | .47 | Manfred | 49-381683903 | | 9410 |
| 128 | DL5KVD | X | JO64AD | .2 | .6 | manfred | | | 9402 |
| 129 | DL5YAG | X | JO31LQ | | | | | | 9300 |
| 130 | DL6NAQ/P | X | JO40XI | | | Engelber | 49-9708-1414 | | 9310 |
| 131 | DL6NCI | XK | JO50SI | 5 | .5 | LORENZ | 49-9293-7013 | | 9402 |
| 132 | DL6SAQ/P | X | JN48UO | | | WALTER | 49-7308-7179 | | 0 |
| 133 | DL8KBR | X | JO31KA | .15 | | HARTWIN | | | 9305 |
| 134 | DL9SH/A | X | JN49DN | | | HORST | 49-6233-70451 | | 9300 |
| 135 | EA3MM | X | JN01WH | | | | | | 0 |
| 136 | F0GOH/P | X | JN37.. | | | | | | 0 |
| 137 | F1AHO | X | JN37NV | | | | | | 0 |
| 138 | F1DED | X | JN18CS | | | Claude | 33-1-39464914 | | 0 |
| 139 | F1FHI/P | X | JN25VV | | | Jean-Pierre | 33-40057015 | | 0 |
| 140 | F1GMB | X | | 1 | .9 | Eric | | | 9410 |
| 141 | F1HDF | X | JN18JJ | | | | | | 9300 |
| 142 | F1HRY/P | X | JN19.. | | | | | | 9307 |
| 143 | F1JBP/P | X | JN25 | | | | | | 0 |
| 144 | F1JEB/P | X | JN09CQ | | | | | | 0 |
| 145 | F6BCU | X | JN38.. | | | | | | 0 |
| 146 | F6CGB/P | X | JN24 | | | | | | 0 |
| 147 | F6DHP/P | X | JN09 | | | | | | 0 |
| 148 | F6DKW | X | JN18CS | .1 | .3 | Morice | | | 9303 |
| 149 | F6DPH/P | X | JO09CR | | | PHIL | | | 0 |
| 150 | F6DZK | X | JN08XS | | | | | | 9300 |
| 151 | F6IOC/P | X | JN36ER | | | | | | 0 |
| 152 | F8WN/P | X | | | | | | | 0 |
| 153 | G0API | X | IO80XS | 20 | .6 | John | | | 9402 |
| 154 | G0BPU | X | JO02OB | 20 | .6 | MIKE | | | 9301 |
| 155 | G0EIV/P | X | IO82.. | | | | | | 0 |
| 156 | G0FDZ | X | JO01BK | 10 | .6 | Chris | 44-81-304-9750 | | 9300 |
| 157 | G0KSP/P | X | IO93 | | | | | | 0 |
| 158 | G0KZP/P | X | IO91GI | .25 | 1 | Mike | 44-494-482479 | | 0 |
| 159 | G0OLX/P | X | JO01.. | | | | | | 0 |
| 160 | G1MPW/P | X | IO91PF | | | | | | 9402 |
| 161 | G2DSP/P | X | IO90SV | .05 | .5 | Ron | 44-243-823684 | | 9402 |
| 162 | G3BEX | X | IO91QP | 4 | .6 | John | 44-494-675097 | | 9402 |
| 163 | G3BNL | XK | IO92KA | 8 | | Les | 44-280-703512 | | 9402 |
| 164 | G3CU | X | | | | | | | 9305 |
| 165 | G3FNQ | XK | IO83LO | .3 | 1 | Denis | 44-704-78100 | | 9402 |
| 166 | G3FYX | XK | IO81SM | 10 | .5 | Roy | | | 9310 |
| 167 | G3GNR | XK | IO70WT | 12 | .9 | Bob | | | 9402 |
| 168 | G3GRO | X | IO91VC | 18 | .9 | Derek | 44-293-520424 | | 9310 |
| 169 | G3JMB | X | IO91WA | .6 | .6 | Jack | 44-444-413889 | | 9300 |
| 170 | G3JMB/P | X | IO90TV | .6 | .6 | Jack | 44-444-413889 | | 9300 |
| 171 | G3JMY | X | IO81RM | 6 | .8 | Ted | 44-454-772384 | | 9305 |
| 172 | G3JVL | X | IO90MS | 100 | 1.2 | Mike | 44-705-464482 | | 9402 |

| No. | Call | BAND | WW | PWR | ANT | Name | Telephone | Remark | Update |
|---|---|---|---|---|---|---|---|---|---|
| 173 | G3KEU | X | IO91CN | 10 | .6 | Tim | 44-793-724150 | | 9310 |
| 174 | G3LQR | XK | JO02QF | 10 | .6 | SIMON | 44-728-78493 | | 9402 |
| 175 | G3LYP | X | IO91OO | 10 | .6 | Mike | 44-494-81298 | | 9300 |
| 176 | G3MTG | X | IO81LA | | | Richard | | | 9402 |
| 177 | G3NKL/P | X | IO84.. | .3 | | Ray | 44-772-784997 | | 9402 |
| 178 | G3NWU/P | X | IO94MJ | 10 | .6 | John | 44-429274842 | | 9402 |
| 179 | G3OXL | X | IO82.. | | | | | | 9402 |
| 180 | G3PHO | XK | IO93.. | | | Peter | | | 9402 |
| 181 | G3PYB | X | | | | Peter | | | 9402 |
| 182 | G3UKV | X | | 20 | | Martyn | | | 9310 |
| 183 | G3UYM/P | XK | IO82.. | | | Harold | | | 9402 |
| 184 | G3WDG | XK | IO92RG | 35 | 3 | CHARLIE | 44-933-411446 | EME | 9402 |
| 185 | G3YGF/P | X | IO80WP | 10 | 1.2 | Julian | 44-794-40008 | | 9402 |
| 186 | G3ZFP | X | IO91RT | 18 | 1.2 | Ray | 44-582-873638 | | 9301 |
| 187 | G3ZME/P | X | IO82QL | | | | | | 9300 |
| 188 | G3ZTR/P | X | IO93PV | | | Dave | | | 9402 |
| 189 | G4BRK | X | IO91DP | 12 | .6 | Neil | 44-793-764995 | | 9310 |
| 190 | G4BYV | XK | JO02LQ | | | John | | | 9402 |
| 191 | G4CBW | X | IO83UB | 3 | .6 | Tony | 44-782566783 | | 9402 |
| 192 | G4DDK | X | JO02PA | 6 | .6 | SAM | 44-394-8495 | | 9302 |
| 193 | G4ELM/P | X | IO90MX | .001 | .8 | Ted | 44-730-892462 | | 9300 |
| 194 | G4EML/P | X | | .25 | | Colin | 44-483-223351 | | 0 |
| 195 | G4EQD | X | IO93QN | | | NIGEL | 44-724-858187 | | 9310 |
| 196 | G4EZP | X | JO01GN | 45 | .6 | Ian | 44-268-751417 | | 9300 |
| 197 | G4EZP/P | X | JO01PU | .2 | .3 | | | | 9305 |
| 198 | G4FCD | X | IO91JV | 10 | | Richard | | | 9402 |
| 199 | G4FRE/P | X | JO01PX | | | Dave | | | 9402 |
| 200 | G4FUF | X | JO01GN | 45 | .5 | Keith | 44-268-751417 | | 9402 |
| 201 | G4JAR/P | X | JO01PU | | | | | | 9310 |
| 202 | G4JNT | X | IO90IV | 10 | .6 | Andy | 44-489-287424 | | 9300 |
| 203 | G4KGC | X | IO92GR | 35 | 3 | Petra | at G3WDG | | 9305 |
| 204 | G4KNZ | XK | IO91PJ | | | Steve | | | 9402 |
| 205 | G4LDR | X | IO91EC | 8 | .6 | Neil | 44-980-862886 | | 9410 |
| 206 | G4LOJ | X | JO02QN | 10 | .7 | Chris | 44-508-49025 | | 9305 |
| 207 | G4LRT | X | IO92LJ | 1 | | Steve | 44-604-740633 | | 9300 |
| 208 | G4MAP/P | X | IO82NN | | | Andy | | | 9402 |
| 209 | G4PBP | X | IO82WO | | | Russ | | | 9402 |
| 210 | G4PCS | X | IO91TV | | | Mark | | | 9402 |
| 211 | G4PMK | X | IO93GT | 1 | .6 | Roger | 44-532-736326 | | 9410 |
| 212 | G4RFR/P | X | | | | | | | 9305 |
| 213 | G4RFR/P | X | IO80UU | 10 | 1.6 | | see G4JNT | | 9305 |
| 214 | G4UQI/P | X | IO84.. | | | | | | 9300 |
| 215 | G4UVZ | X | IO80KX | | | Adrian | 44-823421751 | | 9402 |
| 216 | G4XDM | X | IO82.. | | | | | | 0 |
| 217 | G4ZXO | X | IO91UJ | .2 | .4 | Peter | 44-81-949-3598 | | 9300 |
| 218 | G6CMS/P | X | JO01.. | | | | | | 0 |
| 219 | G6DER | X | IO93GN | .4 | .6 | Keith | 44-226-296108 | | 9300 |
| 220 | G6UAJ | X | | | | | | | 0 |
| 221 | G6XM/P | X | IO80AQ | .6 | 1 | Bill | | SSB under Constr. | 9402 |
| 222 | G8AGN/P | X | IO93EH | | | Barry | | | 9402 |
| 223 | G8APZ | X | JO01CO | 20 | .6 | Robin | 44-277-211126 | | 9311 |
| 224 | G8AYY | XK | | | | Paul | | | 9402 |
| 225 | G8BJG/P | X | | | | | | | 0 |
| 226 | G8BKE | X | | .25 | | Chris | 44-425-615143 | | 9306 |
| 227 | G8DDK | X | IO91VX | 15 | .6 | Bryan | 44-462-678712 | | 9300 |
| 228 | G8FWA | X | IO92LM | 10 | .6 | Julian | 44-533-402952 | | 9402 |
| 229 | G8HPU/P | X | JO02 | | | | | | 0 |
| 230 | G8HPW/P | X | JO01QX | | | | | | 0 |
| 231 | G8IFT/P | X | IO93XG | .2 | | Ian | | | 0 |
| 232 | G8KMH/P | XK | IO91PF | .8 | 1.4 | Lehane | 44-252-851078 | | 9402 |
| 233 | G8KQW/P | X | IO91GA | | | Ian | | | 9309 |
| 234 | G8LSD | X | JO0... | .2 | .8 | Alan | 44-892-662561 | | 9300 |
| 235 | G8LSD/P | X | IO90TV | .2 | .8 | Alan | 44-892-992561 | | 9300 |
| 236 | G8PUB/P | X | JO01QE | | | | | | 0 |
| 237 | G8PX | X | | | | | | | 9305 |
| 238 | G8SWZ | X | IO82WO | 10 | .6 | Glyn | 44-902-753975 | | 9402 |
| 239 | GD3ZME/P | X | IO74.. | | | | | | 0 |
| 240 | GI8GJX | X | IO74AQ | 15 | 1.2 | Sam | 44-232-832451 | | 9402 |
| 241 | GM3BJF | X | | | | | | | 9305 |
| 242 | GM3WIL/P | X | | 1 | .9 | Dave | | | 9402 |

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|---|---|---|---|---|---|---|---|---|---|
| 243 | GM4ISM | X | IO85AR | 40 | .3 | Mark | 44-698-886504 | | 9402 |
| 244 | GW1GHZ/P | X | IO82.. | | | | | | 0 |
| 245 | GW3ATM/P | X | IO81.. | | | | | | 0 |
| 246 | GW3PPF/P | XK | | | | Phil | 44-222-6310 | | 9402 |
| 247 | GW4LXO/P | X | IO81.. | .15 | | Jonathan | 44-222620694 | | 0 |
| 248 | HA9RX/DL/P | X | | | | WERNER | bei DF9PY | | 0 |
| 249 | HB9AGE | XK | JN37KB | 40 | 3 | Walter | 41-38246543 | EME | 9402 |
| 250 | HB9AMH/P | XKU | JN37OE | 17 | 1 | ARNOLD | 41-32872107 | | 9307 |
| 251 | HB9BZD | | JN47HH | .2 | 1 | Albert | X | | 9505 |
| 252 | HB9MIN/P | XKU | JN37OE | 20 | .9 | ERICH | 41-32815013 | | 9402 |
| 253 | HB9MIO/P | XKU | JN37WA | 1 | .7 | Ferdinand | 41-7678114 | | 9303 |
| 254 | HB9MMM/P | X | JN37PG | .2 | .4 | Püüp | 41-614214343 | | 9402 |
| 255 | HB9RG | X | JN47GF | 20 | 1 | HANS | 41-1-7299441 | | 9410 |
| 256 | HB9SV | X | JN45.. | | | | | | 9306 |
| 257 | HG2RG/3 | X | JN96.. | | | | | | 0 |
| 258 | I0LVA | X | JN62 | | | | | | 9303 |
| 259 | I1DDS/IX1 | X | JN35.. | | | | | | 0 |
| 260 | I2BBH/2 | X | JN44.. | | | | | | 0 |
| 261 | I2MUT/2 | X | JN55.. | | | | | | 9205 |
| 262 | I3CLZ/3 | X | JN55.. | | | | | | 0 |
| 263 | I3DRE | X | JN55.. | | | | | | 9307 |
| 264 | I3OPW/3 | X | JN65.. | | | | | | 0 |
| 265 | I3ZH/3 | X | JN45.. | | | | | | 9306 |
| 266 | I3ZJL | X | JN55QR | 1 | 1 | Giorgio | 44-5526997 | | 9410 |
| 267 | I4AOR | X | JN54.. | | | | | | 0 |
| 268 | I4BER | X | JN54.. | 1.5 | 1 | | 39-51510640 | | 9306 |
| 269 | I4CHY | X | JN54.. | | 4 | MARCO | 39-51723184 | | 0 |
| 270 | I4FKD/4 | X | JN54 | | | | | | 0 |
| 271 | I4QIG | X | JN54.. | | | | | | 9306 |
| 272 | I6XCK | X | JN63.. | | | | | | 9306 |
| 273 | I6XCK/IS0 | X | JM49.. | | | | | | 0 |
| 274 | I6ZAU | X | JN63.. | | | | | | 0 |
| 275 | IK3IEO/3 | X | JN66.. | | | | | | 0 |
| 276 | IK3NVW/3 | X | JN55.. | | | | | | 9306 |
| 277 | IK4OMN | X | JN64.. | | | | | | 9306 |
| 278 | IT9FTG/IH9 | X | JN63GN | | | | | | 9207 |
| 279 | IV3FDO/P | X | JN66 | | | | | | 9306 |
| 280 | IW0BFZ | X | JN61 | | | | | | 0 |
| 281 | IW1ALW | X | JN35.. | | | | | | 0 |
| 282 | IW4AKY/P | X | JN54.. | | | | | | 0 |
| 283 | IW4ASY | X | JN54.. | | | | | | 0 |
| 284 | IW5BSF | X | JN53GW | | | | | | 9306 |
| 285 | IW6AEG/6 | X | JN63GN | | | | 39-71883719 | | 9306 |
| 286 | LA1T | X | JO59.. | | | | | | 0 |
| 287 | LA2D | X | JO48.. | | | | | | 9307 |
| 288 | LA3VW | X | | .2 | .5 | | | | 0 |
| 289 | LA4WN | X | JO59.. | | | | | | 0 |
| 290 | LA5QEA | X | JP99MQ | 1 | .5 | Rolf | | | 9505 |
| 291 | LA6LCA | XK | JO59FE | | | LEIF | 47-3384063 | | 9410 |
| 292 | LA7QM | X | JP89TF | .2 | .5 | Arvid | | | 9505 |
| 293 | LA8AK | X | JO38XC | 20 | 1 | JAN-MARTIN | 47-4287178 | | 9402 |
| 294 | LA8AV/P | X | | .5 | .5 | Eigil | 47-32823918 | | 9505 |
| 295 | LX1CD | X | JN39BN | 1.5 | .7 | Carlo | 45-75732311 | | 9410 |
| 296 | LX1DB | X | JN29XL | | | | | | 0 |
| 297 | LX1DU | X | JN29XM | .5 | | FRANK | 35-2556765 | | 9310 |
| 298 | OE1CIW | X | JN77.. | | | | | | 9307 |
| 299 | OE1EEA/3 | X | JN77.. | | | | | | 0 |
| 300 | OE1JOW | X | JN88.. | | | | | | 0 |
| 301 | OE1KTC | X | JN88.. | | | | | | 0 |
| 302 | OE1KTC/5 | X | JN68.. | | | | | | 0 |
| 303 | OE1WWA/3 | X | JN77.. | | | | | | 9307 |
| 304 | OE2BM/P | X | JN67.. | | | | | | 9307 |
| 305 | OE3XUA | X | JN77XX | | | | | | 9307 |
| 306 | OE5GGM | X | | | | | | | 0 |
| 307 | OE5VRL/5 | X | JN78DK | 1 | 1.5 | Rudi | 43-072126239 | | 9310 |
| 308 | OE6AP | X | JN77SB | | | ALOIS | | | 9306 |
| 309 | OE6LOG | X | JN76.. | | | | | | 0 |
| 310 | OE8JDK/8 | X | JN66 | | | | | | 0 |
| 311 | OE8MF | X | | | | | | | 0 |
| 312 | OE8MI/8 | X | JN66HQ | | | | | | 9306 |

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|---|---|---|---|---|---|---|---|---|---|
| 313 | OE8NTK | X | JN66.. | | | | | | 9305 |
| 314 | OE8XBB/8 | X | JN60.. | | | | | | 0 |
| 315 | OE9ERC | X | JN47VL | | | Erich | | | 9300 |
| 316 | OE9MDI | X | JN47 | | | | | | 0 |
| 317 | OE9PMJ | | JN47 | 10 | 1 | Peter | | | 9402 |
| 318 | OE9YTV/9 | XKUE | JN47 | 10 | 1 | Reinhilde | | | 9402 |
| 319 | OH0NC | X | JP90XC | .5 | .7 | Sam | 358-2813068 | | 0 |
| 320 | OH2BWL | X | KP20.. | | | | | | 0 |
| 321 | OK1AIK/P | X | JO70.. | | | | | | 9307 |
| 322 | OK1AIY/P | X | JO70SQ | | | | | | 9307 |
| 323 | OK1DIG/P | X | JO60WN | | | | | | 0 |
| 324 | OK1HK/P | X | JO70.. | | | | | | 0 |
| 325 | OK1KAI/P | X | JO60.. | | | | | | 0 |
| 326 | OK1KIR | X | JN79DW | | 4 | | EME !!! | | 9310 |
| 327 | OK1KIR/P | X | JO60LJ | 15 | 1 | | | | 9310 |
| 328 | OK1KKD/P | X | JO70.. | | | | | | 9307 |
| 329 | OK1KKH/P | X | JN79OW | 6mW | | | | | 9307 |
| 330 | OK1KQT/P | X | JO80.. | | | | | | 0 |
| 331 | OK1KTL/P | X | JO60LJ | | | | | | 9307 |
| 332 | OK1KZN/P | X | JO70.. | | | | | | 0 |
| 333 | OK1MDK/P | X | JN79OW | | | Pepik | | | 0 |
| 334 | OK1MWD/P | X | JO60.. | | | | | | 9307 |
| 335 | OK1UFL/P | X | JO70.. | | | | | | 9307 |
| 336 | OK1UWA/P | X | JO70UR | | | Peter | (OK1AXH) | | 0 |
| 337 | OK1VAM/P | X | JO60.. | | | | | | 0 |
| 338 | OK1WFE/P | X | JO70.. | | | | | | 0 |
| 339 | OK8AUS | X | | | | | via OK1KEI/p | | 0 |
| 340 | ON4CP/A | X | JO20IV | | | | | | 9307 |
| 341 | ON4QQ | X | JO20FS | | | | | | 0 |
| 342 | ON5FF | X | JO11VB | | | Marc | | | 9300 |
| 343 | ON5OF/P | X | JO30AM | | | | | | 9306 |
| 344 | ON5UI | X | JO11VA | | | Noel | 32-91304770 | | 9310 |
| 345 | ON5VK/P | X | JO20KJ | | | | | | 9300 |
| 346 | ON6JZ | X | | | | | | EME | 9305 |
| 347 | ON6OO | X | JO21JH | | | Bert | 32-33123087 | | 0 |
| 348 | ON6UG | X | JO11UB | | | Freddy | | | 9310 |
| 349 | ON7WR/A | X | JO20EP | | | | | | 9307 |
| 350 | ON7YK | X | JO21GG | 0.5 | .5 | ANDRE | 32-3-6583206 | | 0 |
| 351 | OZ1COX/P | X | JO55 | | | Ernst | | | 9402 |
| 352 | OZ1DAT | X | JO55 | | | Svend | | | 9402 |
| 353 | OZ1DCT/P | XK | JO55 | | | Thomas | | | 9402 |
| 354 | OZ1DOQ | | JO65HP | 10 | | Uffe | | | 9402 |
| 355 | OZ1FJJ | X | JO46 | | | Kurt | | | 9402 |
| 356 | OZ1FPN/P | XK | JO65 | | | Palle | | | 9402 |
| 357 | OZ1HDA | XKX | JO47VK | | | Erik | 45-98889301 | | 9402 |
| 358 | OZ1HRP/P | XK | JO65 | | | Henrik | | | 9402 |
| 359 | OZ1IPU | XK | JO57GH | .4 | .65. | John | 45-98463311 | | 9402 |
| 360 | OZ1JLA/P | X | JO65 | | | Jens | | | 9402 |
| 361 | OZ1JXY | XK | JO46TX | .25 | .6 | Henning | 45-98353856 | | 9402 |
| 362 | OZ1UM | XKUE | JO65DX | 10 | .6 | BJARNE | 45-42287033 | | 9402 |
| 363 | OZ2FF/P | XK | JO66.. | | | Finn | | | 9402 |
| 364 | OZ2HSO/P | XK | JO55 | | | Sören | | | 9402 |
| 365 | OZ2OE | XK | JO45VV | | | Ole | | | 9307 |
| 366 | OZ2TG | X | JO65FP | | | Steen | | | 9402 |
| 367 | OZ5BZ | X | JO45OU | .2 | .5 | Erik | 45-75732311 | | 9410 |
| 368 | OZ5DI/P | X | JO66 | | | Eigil | | | 9402 |
| 369 | OZ5TG/P | X | JO45 | | | Verner | | | 9402 |
| 370 | OZ5UJ/P | XK | JO66.. | | | Nils | | | 9402 |
| 371 | OZ6JI/P | X | JO45 | | | Joern | | | 9402 |
| 372 | OZ6MD/P | XK | JO66 | | | Johnny | | | 9402 |
| 373 | OZ6TX/P | XK | JO55 | | | Jens | | | 9402 |
| 374 | OZ7DX | XK | JO66CD | | | Voegg | | | 9402 |
| 375 | OZ8AO/P | XK | JO66.. | | | Jan | | | 9402 |
| 376 | OZ8VO | X | JO56AL | .5 | .5 | Harry | 45-86419510 | | 9410 |
| 377 | OZ8WK | X | JO47XA | | | Joergen | | | 9402 |
| 378 | OZ9FR/P | X | JO55 | | | Flemming | | | 9402 |
| 379 | OZ9ZI | XK | JO65CS | .2 | .5 | Steen | 45-42172142 | | 9402 |
| 380 | PA0ASH | X | JO22HH | 8 | .75 | TONI | ++31-23-292040 | | 9410 |
| 381 | PA0AWN | X | JO33DE | 1 | 0.5 | ALBERT | ++31-5945-49227 | | 9410 |
| 382 | PA0BAT | X | JO31FX | .6 | .7 | GERARD | 31-835241339 | | 9310 |

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|---|---|---|---|---|---|---|---|---|---|
| 383 | PA0EHG | XKUE | JO22HB | 2.5 | .7 | Hans | ++31-1727-17975 | | 9410 |
| 384 | PA0EZ | X | JO22OF | 40 | .75 | ARIE | 31-35241408 | | 9410 |
| 385 | PA0GUS | X | JN23TA | .2 | .7 | Guus | ++31-5150-17474 | | 9410 |
| 386 | PA0HRK | X | JO21EX | .2 | .45 | Harke | ++31-15-613948 | | 9410 |
| 387 | PA0JCA | X | JO22JG | 2 | .7 | Sjaak | ++31-2977-29522 | | 9410 |
| 388 | PA0JGF | XK | JO32IH | 2.5 | .6 | Jan | ++31-5407-62894 | | 9410 |
| 389 | PA0JOZ | X | JO22FF | 1 | .7 | JOS | 31-171915472 | | 9410 |
| 390 | PA0PLY | X | JO22MH | 20 | .75 | JAN | 31-250334591 | contest only | 9410 |
| 391 | PA0SQE | X | JO21FW | .60 | .4 | SIMON | ++31-10-4674897 | | 9410 |
| 392 | PA0TAB | X | JO33HF | 1 | .7 | JOHAN | | | 9410 |
| 393 | PA0WWM | X | JO22FE | .2 | 0.3 | WIM | ++31-1718-75575 | | 9410 |
| 394 | PA2DOL | X | JO21GW | 10 | .5 | DOLF | ++31-10-4564897 | | 9410 |
| 395 | PA2HJS | X | JO20XX | .3 | .75 | HENK | 31-44924980 | | 9410 |
| 396 | PA3AGS | X | JO22JP | 3.5 | .7 | Hans | 31-72612193 | | 9410 |
| 397 | PA3AWJ | X | JO21GW | .2 | .75 | Theo | ++31-10-4421485 | | 9410 |
| 398 | PA3DIJ | X | JO33BC | .2 | .7 | | ++31-5120-30783 | | 9410 |
| 399 | PA3DU | X | JO33BC | 1.2 | .8 | Frank | 31-512030783 | | 9410 |
| 400 | PA3FPQ | X | JO21VX | .15 | .9 | Johan | ++31-8373-12981 | | 9410 |
| 401 | PA3FPS | X | JO22IJ | 1 | .7 | Theo | 31-23374139 | | 9410 |
| 402 | PA6C | X | JO33GB | | | Ene | PA3CEG | contest only | 9410 |
| 403 | PE0AGO/P | X | JO32FI | .3 | | TON | (PE1CJW) | | 9303 |
| 404 | PE0MAR/P | X | JO21BX | 20 | .6 | RON | PE1CKK | | 9410 |
| 405 | PE1BTV | X | JO22KL | 3 | .7 | | 31-23385226 | | 9410 |
| 406 | PE1CQQ | X | JO22PQ | | | Adriaan | | | 9410 |
| 407 | PI4GN | X | JO33KK | | | | PA0PLA | contest only | 9410 |
| 408 | S51JN/P | X | JN65.. | | | | | | 9306 |
| 409 | S51WI | X | JN75FO | .2 | 1.2 | Stojan | 386-67-22883 | | 9402 |
| 410 | SK0CT | X | JO89XJ | .1 | .7 | CLUB-STN | 46-8-7573315 | call at SM0KAK | 9402 |
| 411 | SK0WX | X | JO99BM | 10 | .6 | Club | | SM0LKE | 9402 |
| 412 | SM0CPA | X | JO89XH | 10 | .6 | LARS | 46-8803321 | | 9402 |
| 413 | SM0EJW/P | X | JO89 | 10 | | Peter | 46-8369744 | | 9402 |
| 414 | SM0ERR | X | JO89WS | .2 | .6 | Mart | 46-8-361905 | | 9402 |
| 415 | SM0FUO | X | JO89 | .2 | .6 | Haakan | 46-853255257 | | 9402 |
| 416 | SM0FZH | X | JO99HI | 10 | .6 | Eberhard | 46-889-6989 | | 9402 |
| 417 | SM0LKE/P | X | JO99 | .2 | .6 | Owe | 46-854-132044 | | 9402 |
| 418 | SM0MEM | X | JO99 | 10 | .6 | Peter | 46-87734075 | | 9402 |
| 419 | SM3BEI | X | JP81NG | 10 | .6 | Lennart | 46-27051474 | | 9402 |
| 420 | SM4DHN | X | JP60VD | 60 | 4 | Lars | 46-563-26061 | EME | 9402 |
| 421 | SM5BEI | X | JP90EZ | 10 | .6 | Lennart | | Summer QTH | 9402 |
| 422 | SM5QA | X | JO89WJ | 10 | .6 | Karl-Gösta | 46-873-3282 | | 9402 |
| 423 | SM6EAN | X | JO57WQ | 6 | .7 | Mats | 46-31294274 | | 9410 |
| 424 | SM6ESG | X | JO67CC | 10 | 1 | MORGAN | 46-340-83360 | | 9402 |
| 425 | SM6HYG | X | JO58RG | 5 | 1.4 | KARL | 46-523-11032 | | 9402 |
| 426 | SM7ECM | X | JO65NQ | 10 | .9 | ANDY | 46-40465606 | | 9402 |
| 427 | WB6YLI/G0 | X | JO00CT | .5 | 1.5 | Gordon | 44-323-484643 | | 9300 |

## Microwave: World Firsts and World Records

| Band [GHz] | World First QSO | | | World Record | | |
|---|---|---|---|---|---|---|
| | Date | Calls | QRB [km] | Date | Calls | QRB [km] |
| 10 | 6.V.1946 | W2JRM-W2JN | 3.3 | 30.12.1994 | VK6KZ-VK5NY | 1991 |
| 24 | 14.IX.1975 | G3BNL/P-G3EEZ/p | 150 | 3.II.1993 | HB9MIN/p-DH6FAE/p | 396 |
| 47 | 3.X.1984 | HB9AMH-HB9MIN | 1 | 5.X.1994 | HB9MIN/p-DF7FJ/p | 184 |
| 76 | 30.12.1985 | HB9MIN-HB9AGE | 0.5 | 17.I.1995 | HB9MIO/p-DK4GD/p | 80 |
| 145 | 12.VII.1992 | DB6NT/p-DL1JIN/p | 1 | 2.VII.1994 | OZ1UM/p-OZ9ZI/p | 11 |
| 241 | 23.V.1993 | DB6NT/p-DL1JIN/p | 0.1 | 30.VI.1993 | OZ/DB6NT-OZ/DF9LN | 0.5 |

If you have an update or a correction, please write to:
John Sørensen, OZ1IPU, Rosenvej 49, DK-9300 Sæby, Denmark.Tel.: (++45)9846-3311

# Microwave Japan

Editor: Toshihiko Takamizawa, JE1AAH

First of all I must say something about earthquake in Kobe. There was a really big earthquake in Kobe (JA3 area) January 17th. It was M7.2 big and has hit the city from just under ground of that area. So magnitude is not so relatively big but damage was absolutely large in that area. We must say thank you for all emergency rescue from foreign countries but due to bad treatment of our government we must apology not to accept those help as quick as possible. In the government, some party said 'let's have rescue from HB9 with special rescue dog' and Department of agriculture said 'Dogs must be checked and kept to isolate for 2 months'. Its unbelievable! What can they do after 2 months isolation? Our government system is built completely by its functional order and NO department to department linkage arises. It is a big barrier for such complex matter.

Japanese government should change it soon. Now it is Feb.13th and there are still 230,000 people are evacuated at public hall, school and park because their house or flat was broken or partially broken and not allowed to get into those buildings. Still more than 500,000 houses do not have gas and water. Electric has been recovered instead.

Anyway, many thanks to all from Japan, again.

## 10GHz EME frequency from JA

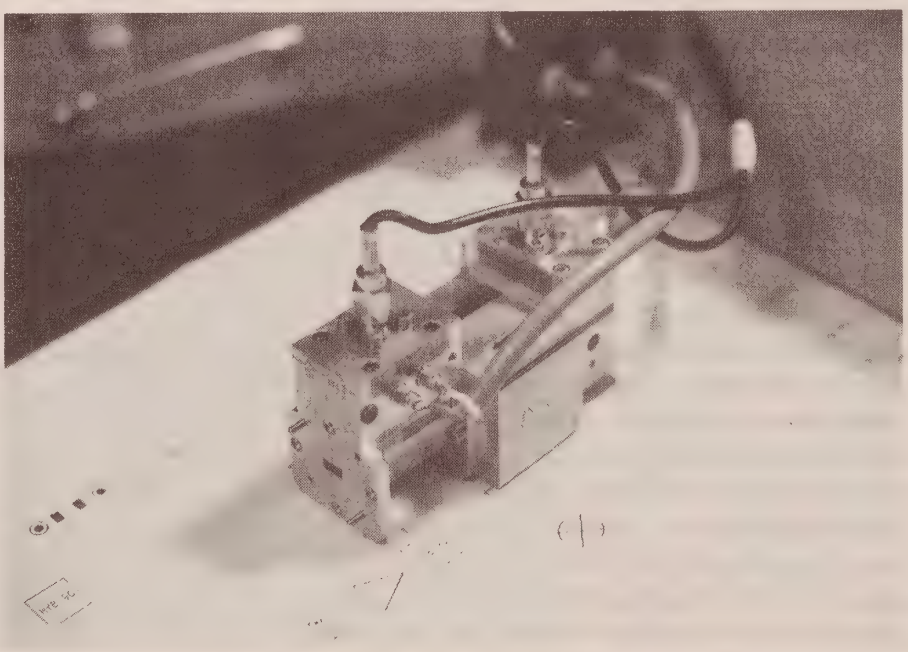
Now wave for 10GHz EME has been very high in the world. It is the same in Japan and several stations are building equipment. JA0IXX is probably almost ready for operation. JA4BLC will report in the next issue focusing EME but this month I would like to present frequency allocation for 10GHz EME between JA and other countries.

As I mentioned before, we had 10.000 to 10.500GHz for 3cm. However most preferable part from 10.250 to 10.450GHz was quitted from government few years ago.

We must operate 10GHz EME between 10.000 and 10.250 or 10.450 and 10.500.

Additionally, we must comply with JARL bandplan which specifies SSB/CW between 10.240 and 10.242GHz. Any of mode is allowed between 10.000 and 10.025, 10.080 and 10.180, 10.245 and 10.250, 10.450 and 10.500. This bandplan is not a law but we mustcomply while operation.

I understand almost 10GHz station in Europe and USA is using 2m as IF. So 10.224GHz is a local



**Millitech 45GHZ Gunnoscillator with 100 mW**

frequency. As a result of upper sideband heterodyne 10.368GHz is produced. What do anybody think to use lower sideband heterodyne for JA contact 10.224-144=10.080GHz which is just a start frequency of any mode allocation.

Only one problem is due to lower heterodyne and 143.xxx is needed for IF to operate 10.080.xxx. 143.90MHz will be converted to 10,080.10MHz. According to previous government license authorization, above mode specification(bandplan) is highly recommended to get license. Below 10.080GHz(144.00 and above), it is allocated to TV mode and not good for SSB/CW as license point of view. Could anyone kindly offer how to expand 2m computer control rig's frequency to lower side?

**Tokuichi, JA2KRW: 432 EME**

Another recommendation is to establish common/shared 10GHz EME window which is acceptable for all country's frequency allocation. I think between 10.240 and 10.250 is the best window in Japan which is allocated for any mode. I'm not a EME specialist but concerning frequency portability for overseas QSO which was not possible from Japan before but now possibility arises via moon. I have heard that in last EME conference in Sweden a session to talk about 10GHz EME frequency was made but could not reach agreement. Is it correct?

Personally, I got 10pcs of FLM0910-10 for something SSPA purpose. It costs 95,000 yen each. For 10GHz, splitting and combining high power is not easy like that of 1.2 or 2.3GHz. At least 1dB of insertion loss is estimated. Thicker board is good for dielectric loss but not good for radiation loss. It is trade-off between thickness of the board, dielectric loss and radiation loss. My friend working in the Fujistu SSPA division recommended me to use 0.5mm or 0.6mm PTFE or Duroid board for SSPA. He said a ratrace coupler would perform better than a branch line coupler at X band and above. As there is no high power device above 12W(TM1011-12 from Toshiba) in the market, we should produce over 10W using power combining technique.

## 24GHz frequency usage in Japan

It is not critical like that of for 10GHz because it is not easy to operate EME this band. Since we do not have above 24.050GHz, almost QSO is being done between 24.000 and 24.040GHz. I understand in UK consideration to move to 24.048GHz has been taken in account but in continental country, 24.192 will be used near future. No JARL bandplan is established yet.

## 47GHz frequency plan in Japan from JE1AAH

We have a frequency allocation from 47.000 to 47.200, 200MHz width. Since there is almost no(except JA8CMY) activity reported, my friend and I agreed with to operate between 47.060 to 47.100GHz. We are planning to use 1.2GHz as IF and it allows direct frequency translation from IF rig's main dial. (i.e.: 1260 > 47.060, 1280 > 47.080, 1299 > 47.099) A 1145MHz baseband LO will be built and then multiplied 40 to 45.800GHz. There is no bandplan from JARL also and we will be first stone in the future bandplan.

## 10GHz contest in Japan

There is no 10GHz contest in Japan. Now JARL microwave committee is starting to think about separated SHF contest. I thank to Rainer, Kent and Lehane for their contribution for me to get a contest rule from DL, W and G. It is really good example to make our new SHF contest rule.

# EME News from Japan

I have reported current Japanese EME scene one year ago in Dubus 2/94. Author of the article JA4BLC attended EME conference in Sweden last summer and has had confidence that many EMEers were intersted in the article. This month I will present update of EME activity of this 12 months in Japan.

January 17th 1995, we had very large earthquake in Kobe area. JH3ERQ lost 4 yagi for 70cm by the earthquake. Fortunately he and his family could survive without injury in such catastrophic disaster. No other EMEer was damaged. We must thank for quick and heartful expression of your sympathy. How we were encouraged by those inquiry at that time, we can not exprain. Many thanks, again.

## Hot news

### 144MHz

Update of 500W license JL1ZCG 12 yagi + 4CX1500A

JK1HIX 4 yagi + 8877

### 432MHz

Update of 500W license JR1RCH(100W) 4 yagi + 4CX250Rs

JL1ZCG 16 yagi + 8938

JH3ERQ 4 yagi + 3CX800A7

JR9NWC 8 yagi + 3CX800A7

### 1296MHz

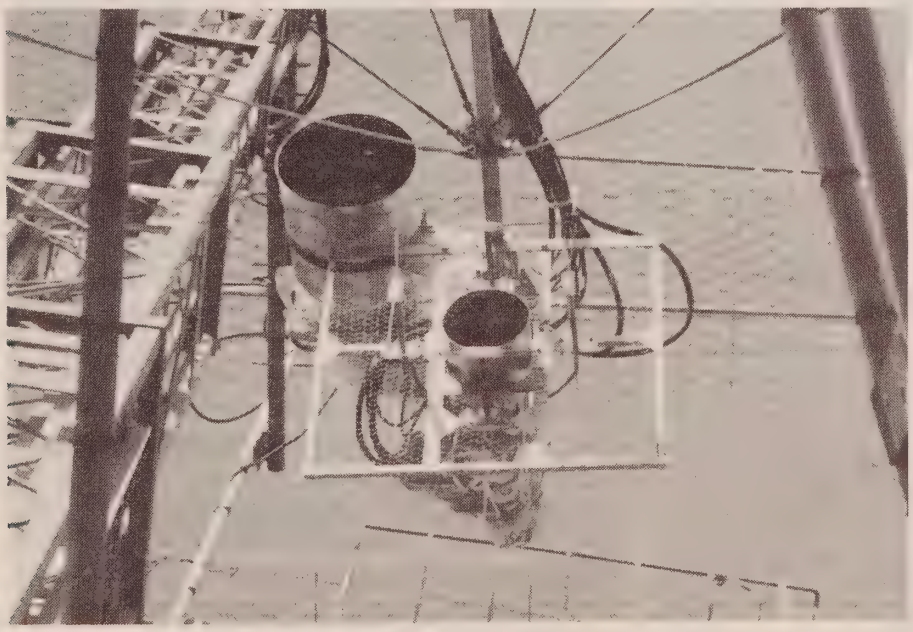
JA4BLC, JR4BRS, and JH3EAO are licensed for EME as of today.

JR4AEP has submitted 500W proposal 3 years ago and he received preliminary license for system test February 1995. He will have government inspection after he completes system test and will get authorized license. His system will be 4m dish with 2 x water cooled parallel 7289 HPA which is expected to produce 500W. JA4BLC is also submitting 500W license update.

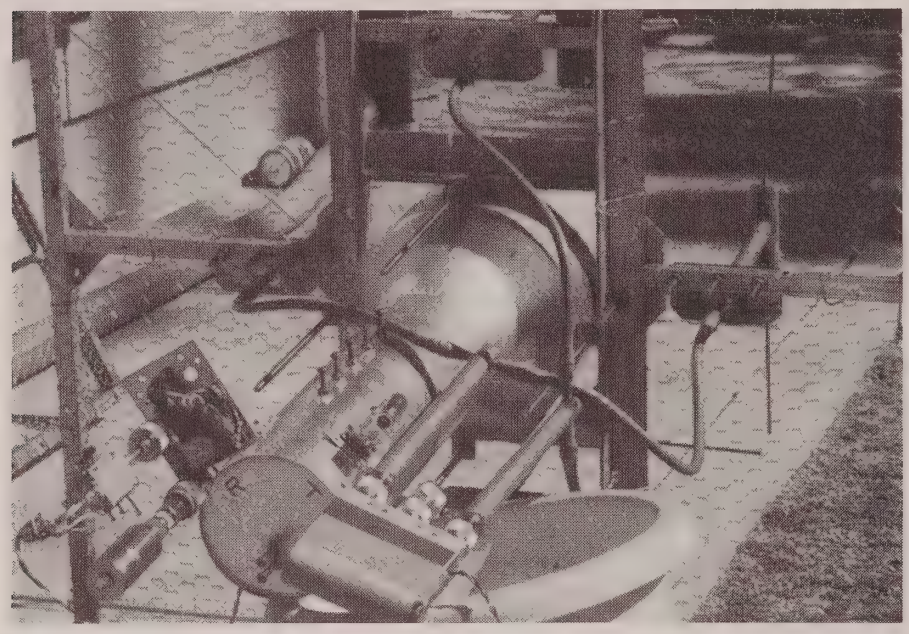
### 2424MHz

JH3EAO follows JA4BLC to get 100W license and has been autholized last March 1995. He is equiped with 4.7m dish, FHX15LG, VE4MA designed water cooled 2x7289. He made contacts with JA4BLC, WB5LUA, W4HHK, and OE9ERC. Initial is 4.

In December 1994, JA6CZD got 100W preliminary license. He is a big name of 432MHz EMEer and has been QRT for this couple of years due to QSY of house. He has 7m dish and making VE4MA design water cooled 7289 HPA. JA4BLC made his first SSB QSO with OE9ERC last November 1994.



**JA4BLC: Triband feed for 432, 1296 and 2304**



**JA4BLC: Dual Dipole Feed for 432 and W2IMU for 2304**

Since Japanse EME frequncy is splitted more than 100MHz from international standard frequency, it is required to make JA special(2424MHz) converter to receive our signal. We are pleased to thank to W4HHK, I6PNN, IN3HER, OK1KIR, and IK6EIW for their contribution to build the JA converter. They made QSO or have copied our signal successfully by the converter.

### 5760MHz

JA4BLC has been inspierd by OE9XXI's sucessfull QSO using 10mm mesh dish and decided to start 5760MHz EME project using his 10mm mesh dish. He has already gotten DL2AM 22W HPA. As mentioned before, legal limit of this band is 1W! and he has already submitted 25W proposal to government.

### 10GHz

There would be several G3WDG systems imported at the moment. JA0IXX has built the system and have tested with 1m dish measuring Sun noise of 6.5dB / Moon noise of 0.25dB while NF of 1.5dB. He has already obtained JA made 10W TWT and bulding high voltage power unit. JA4BLC, JR4BRS, and JH3EAO have already completed G3WDG kits. As JE1AAH reported, legal limit of 10GHz in Japan is 1W EMEer should get special authorization/license to transmit enough power to hear own echo.

Unfortunately JA does not have 10.368GHz allocation. 3cm band on JA is split to 10.000 to 10.250 and 10.450 to 10.500. We should have split operation on 3cm as well as 13cm. I think frequecy allocation possiblly be 10.000 to 10.025, 10.080 to 10.180, 10.240 to 10.242, and 10.450 to 10.500. Pesrsonally JA4BLC proposes 10.450 for JA'sEME uplink.

## Publication for EME

Since Japnese language would be a sort of special language in the world, geographically and historically Japanse has been unfamilier with English. Even though in the Ham society in which there would be more opportunity to listen/hear foreign language JA Hams are not good at speaking English. As it dose not change for EMEer we must translate EME publication written in English and publish in Japanese to get popularity.

We have two monthly amateur radio magazines published commercially. One is CQ ham radio which is more than 100,000 monthly issues and other one is Mobile Ham which is more than several ten-thousand monthly issues. Foutunately both magazines have EME column. JA9BOH Kimio is a editor for CQ ham radio column(1 page) which had been written by JA4BLC for 13 years until December 1993. JH3EAO Takao is a editor of Mobile Ham column(2 pages) following JF1MCF since June 1993.

Unfortunately members magazine JA EME news published by JR4AEP for 12 years had halted last March 1995. JA9BOH Kimio has started e-mail information service since last year instead. It reports sked, activity info exchange using Fax and PC.

I would like to introduce Japanese EME publication which should attract foreign amateurs who

**432 EME: SWL JA4HZN with 4 m Dish**

can not understand Japanese language through figures and schematics.

EME handbook 253 pages January 1994 Author JA4BLC $53USD

All EME related article in full 253 pages (world first?!). JA4BLC is a editor in chief editing an article written by several active JA EMEers.

Ham journal #93 $18USD

CQ ham radio magazine's technically specialized bi-monthlt magazine. #93 has

2.4GHz EME special issues(44 pages) by JA4BLC.

Ham journal #94 $18USD

This issue includes special EME conference report(8 pages) held last August 1994 in Sweden. You will enjoy through many photos and enjoyable report by JA4BLC.

Ham journal #95

Following #94, JA4BLC reports his trans-European EMEer tour before attending 1994 conference(12 pages). DL9KR, DL5MAE, OE9ERC, OE9XXI, OE5JFL, DF6NA, and SM6CMU are smiling, eating, drinking, and shouting in many photographs with their great shack and antenna.

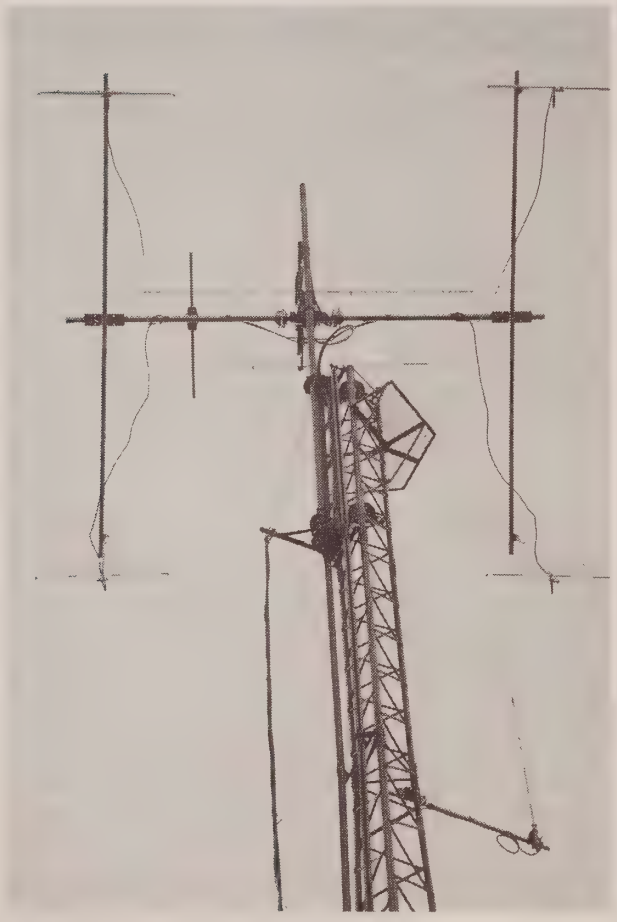
Inquiry for these publications should go to JA4BLC. Cost includes postage.

**VY 73 JE1AAH**

# EME News

Editor: Bernd Wilde, DL7APV

**Intro:** REF/DUBUS contest had fair conditions on 70cm bur activity was not as expected, but on 23cm and up the activity was very good. One highlight was 3A/DJ5MN on 70cm with 1KW&1 Yagi. The dates for the **ARRL** International EME Competition has been set for the weekends of **October 7-8 and November 4-5**, 1995. The complete rules will appear in September QST, issued by Billy Lunt, KR1R Contest Manager, ARRL. Like the diccussion last year this great **wise** decision to put the ARRL contest this year parallel to the UHF/SHF IARU Region 1 contest, will impair the European stations considerably. Does the **infallible ARRL** know how to run an EME contest in the middle of Europe when a tropo contest is on and your sigs can be heard from about 100-500 contest-stations and they will insist to call you? Should we have to concentrate to the European DUBUS/REF - EME contest? This issue includes the **results** of the DUBUS/REF contest.



**JE1BMJ 4x13el. 2m**

## 144MHz

**I2FAK wkd** : new initals OZ8RW, K0KKV, DL4DTU, JW0BY, OL5X, G3LGC, JA9BOH, OZ1LO, F5UM, 9A5Y, UN8BT, DF1IAZ, LU7DZ (new QTH!), SK7CA, OH3AWW, KE6PT, DJ7OQ, VE1ZJ, VE3ASO, DJ3MYJ, DL3MGL, W8WZG, OK7O, WA6YDI, KB6IGC, N8ITP, G4ASR, G4WFR, JA5YJS, KB2AYU, DH2OAA, AA0CP, S52LM, NI6G, IK4WLV; HB9SUL, IW1BCV, KC4/K6MYC county 101, IW1CGB, VE1VAS, DL7UTS, I3DLI, OZ1DLD, OZ1FKZ, DK0TU, DK0BN, EA3AXV, I5WBE, IK0IXI and W6JKV/V2 country 102 and #766. He found condx at italian eme contest bad to fair, low activity from europe and one way condx to north america made it not to much enjoyable. Score #83 and 18 I stns for final 1568. tnx fer info Franco

**JL1ZCG wkd :** 15.04. RU1AA #, I4XCC, F/G8MBI #, YU7EW #, IK3MAC, OH2AUK #, SM5MIX, DK2PH #, EA6VQ, hrd : DL3BWW NIL 3A2MD, #288. He couldn't hear 3A2MD at all, but condx for europe seemend very well. He wkd 5 new initials though negative declination. tnx fer info JR4ENY/1 AWA

**JW0BY** reports from JQ88AD, in early January the winter gales had broken off the first boom sections of two antennas, with 4 elements each. Hence the system is reduced now to 2 x 17-element and 2 x 13-element yagis. However, the performance seems not much degraded, as echoes can be copied quite regularly. In 1995 also the following new stations were worked:W0RWH, JA9BOH, VK3AMZ (first VK-JW), DK9OY, DF7KF,

## EME-TOPLIST

### 144MHz

| Call | small SQR | DXCC | States | WASWAC | |
|---|---|---|---|---|---|
| I2FAK | 393 | 54 | 89 | 50 | 1993 1988 |
| HB9CRQ | 358 | 53 | 84 | 50 | 1994 1987 |
| DL3BWW | 352 | 52 | 78 | 50 | 1992 1983 |
| UA9FAD | 202 | 37 | 56 | 35 | -- Yes |
| SM5BSZ | 199 | 40 | 63 | 39 | -- Yes |
| F6IRF | 171 | 29 | 41 | 32 | -- Yes |
| UA4NM | 111 | 23 | 32 | 21 | -- -- |
| EA6VQ | 84 | 22 | 26 | 0 | -- -- |
| LA0BY | 83 | 27 | 29 | 20 | -- -- |
| SM0PYP | 76 | 19 | 28 | 15 | -- -- |
| JW0BY | 58 | 18 | 23 | 8 | -- -- |
| DL5DTA | 37 | 15 | 19 | 7 | -- -- |
| DL7AKA | 32 | 14 | 12 | 10 | -- -- |
| F5HRY | 20 | 0 | 8 | 7 | -- -- |
| HB9DFG | 9 | 7 | 6 | 2 | -- -- |
| DL3YEE | 6 | 3 | 5 | 1 | -- -- |
| OK1KJT/p | 3 | 3 | 3 | 1 | -- -- |
| DF8LC | ? | ? | 20 | 0 | -- -- |

### 432MHz

| | | | | | | |
|---|---|---|---|---|---|---|
| DL9KR | 343 | 48 | 76 | 50 | 1987 | 1978 |
| SM0PYP | 290 | 40 | 50 | 42 | -- | 1989 |
| DJ6MB | 231 | 34 | 56 | 39 | -- | 1984 |
| OK1KIR | 224 | 40 | 58 | 43 | -- | 1982 |
| DL3BWW | 201 | 38 | 59 | 38 | -- | 1991 |
| OE9ERC | 126 | 0 | 0 | 0 | -- | 1993 |
| OK1CA | 108 | 22 | 25 | 21 | -- | -- |
| UA9FAD | 104 | 24 | 34 | 26 | -- | -- |
| YO2IS | 99 | 19 | 31 | 21 | -- | -- |
| SP5CJT | 94 | 24 | 28 | 26 | -- | -- |
| DL3YEE | 90 | 22 | 32 | 15 | -- | -- |
| EA6/DF5JJ | 37 | 15 | 14 | 0 | -- | -- |
| HB9CRQ | 20 | 13 | 12 | 9 | -- | -- |
| UA4NM | 12 | 8 | 10 | 4 | -- | -- |
| DF8LC | 9 | 5 | 7 | 0 | -- | -- |
| F5HRY | 4 | 0 | 3 | 2 | -- | -- |
| ON4KNG | ? | ? | 21 | 0 | -- | -- |

### 1296MHz

| | | | | | | |
|---|---|---|---|---|---|---|
| OE9XXI | 165 | 28 | 33 | 25 | -- | 1989 |
| OE9ERC | 142 | 23 | 25 | 21 | -- | 1993 |
| OK1KIR | 101 | 26 | 28 | 19 | -- | 1989 |
| SM0PYP | 100 | 21 | 26 | 15 | -- | 1989 |
| EA6/DF5JJ | 50 | 15 | 18 | 9 | -- | -- |
| HB9BBD | 49 | 41 | 21 | 5 | -- | 1994 |
| OE9FKI | 48 | 9 | 17 | 10 | -- | -- |
| DF5JJ | 13 | 6 | 7 | 2 | -- | -- |
| DL3YEE | 9 | 6 | 6 | 1 | -- | -- |

### 2300MHz

| | | | | | | |
|---|---|---|---|---|---|---|
| OE9XXI | 39 | 14 | 16 | 9 | -- | -- |
| OE9ERC | 30 | 12 | 15 | 7 | -- | -- |
| OK1KIR | 26 | 10 | 12 | 8 | -- | -- |
| SM0PYP | 21 | 9 | 11 | 7 | -- | -- |
| OE9FKI | 3 | 3 | 3 | 1 | -- | -- |

### 5760MHz

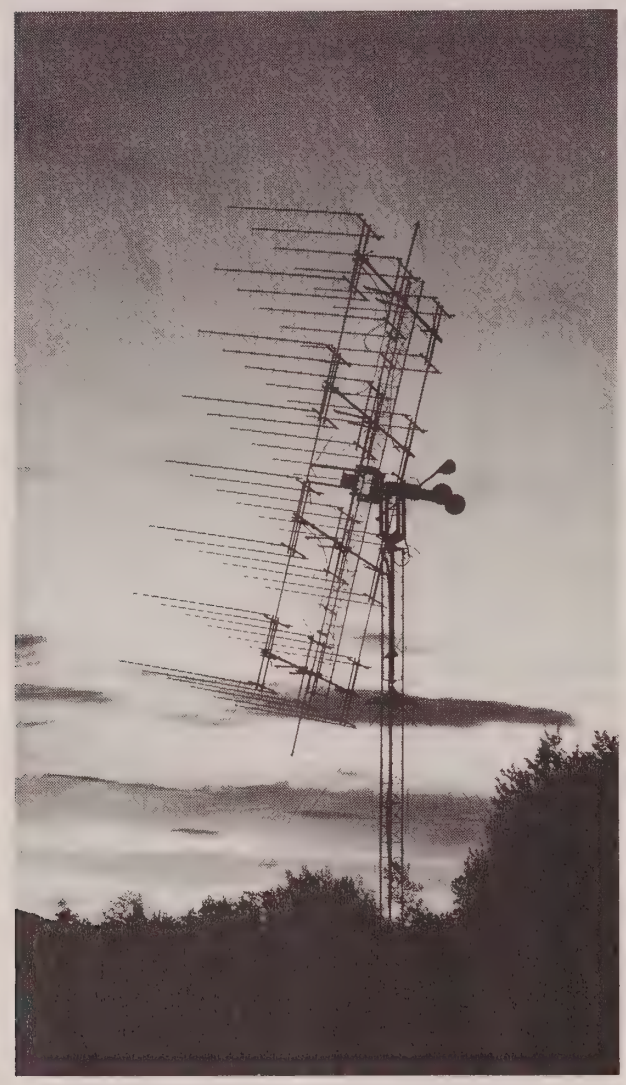
| | | | | | | |
|---|---|---|---|---|---|---|
| OE9PMJ | 7 | 4 | 6 | 0 | -- | -- |
| OE9ERC | 4 | 2 | 4 | 0 | -- | -- |
| OE9YTV | 3 | 2 | 3 | 0 | -- | -- |
| OE9FKI | 1 | 1 | 1 | 0 | -- | -- |
| OK1KIR | 1 | 1 | 1 | 0 | -- | -- |

### 10368MHz

| | | | | | | |
|---|---|---|---|---|---|---|
| DJ7FJ | 16 | 0 | 13 | 5 | -- | -- |
| G3WDG | 14 | 0 | 11 | 4 | -- | -- |
| OE9ERC | 11 | 8 | 7 | 3 | -- | -- |
| G4KGC | 9 | 0 | 9 | 2 | -- | -- |
| OK1KIR | 8 | 5 | 8 | 1 | -- | -- |

LU7DZ (first LU-JW), W7HAH, WG8Q, ZS6ALE (first ZS-JW), W9QXP, UT4EQ, IK1FJI for # 82. These are the possible EME-sked times for JW0BY in June 1995: June 3, 0500-1700 UT + 1930-2200 UT June 4, 0700-1800 UT + 2000-2300 UT June 5, 1500-1830 UT June 6, 1600-1930 UT June 7, 1800-2000 UT. JW0BY will normally use the frequency 144.155 MHz both for skeds and for random CQ. Those interested in a random QSO are advised to wait until a sked is finished and CQ transmitted. The earlier indicated exclusive CQ periods are omitted from the schedule in order to allow for more skeds, but not all of the time indicated is necessarily filled with skeds. Sked proposals are welcome by email (stefan@eiscat.no) or through VE7BQH. The phone number to the shack is +47-790-21236, FAX +47-790-21751 (only in urgent cases). tnx fer info Stefan (JW0BY)

**PA3FJY wkd :** 27.12.94 EA3DXU #, 29.12.94 IK2DDR #, 02.01.95 SM5MIX, 08.01. UT5ER #, 20.01. JL1ZCG #r, 21.01. IW5AVM #, S51WV #, IK1FJI #, DL9YEY #, I2FAK, HB9CRQ, 22.01. LA8YB, W5UN, WB5LBT, EA6VQ #, K5GW, 10.03. K2GAL, 11.03. SM5FRH, I2FAK, 12.03. SM5BSZ # 58, I5JUX, IK2DDR. rig : 4x17el 3.6l, FT225rd+PA 350-400w, preamp <1dB at feed NF-



**NC1I 48x15el fully rotable array**

Filter FL-3. His moon window >15° at rise >10° at set. Dick can take skeds, but not between 22-04 UT via VHF-Net. Presently he prefers random contacts. tnx fer info Dick

**UA4NM wkd :** 29.10.94 F3VS, S51WV, LA8YB, I2FAK, DL8DAT, SM5BSZ, K5GW, LZ2US, 30.10. I5JUX, OE5JFL, SM5FRH, I4XCC, W4ZD, KB8RQ, 26.11. HB9CRQ, K2GAL, WB5LBT, W5UN, SM2CEW, 27.11. SM7BAE. tnx fer info Vlad

## 144MHz netnews

K0IFL gets less and less input for his newsletter and is thinking of giving up, **WB5LBT** activated Nebraska on EME, **LU7DZ** is in FF78 now. **EME conference** 26.-28.05.95 in Baton Rouge Louisiana, any question USA Tel 504 275 6556, Fax 504 275 7704 or postal R.A. Bob Taylor, 10715 Waverland Drive, Baton Rouge, LA 70816-5056; USA.

## 432 MHz

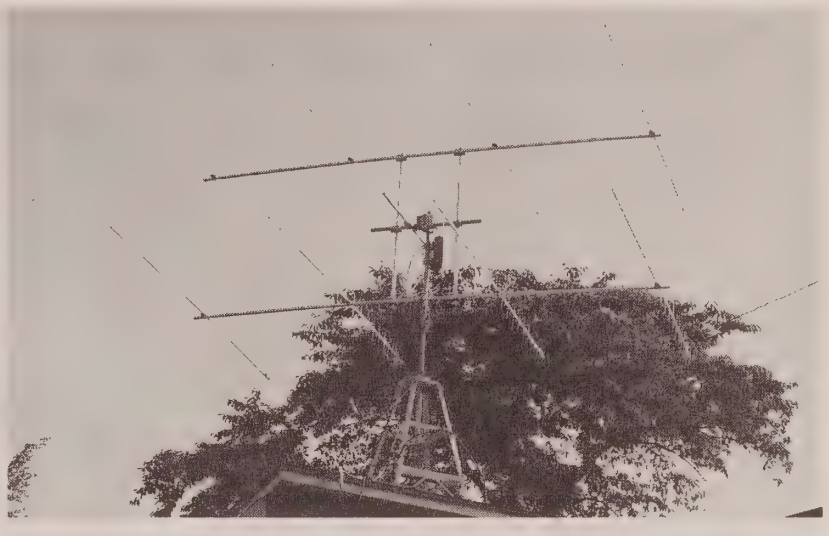
**G0RUZ** reports that his new antenna system of 6 x 11wl DJ9BV opt 70 yagis was installed (not without problems,the rear weight of the antennas gives him elevation headaches at first) on Saturday 8th and he was only qrv between 20:00 and 21:00 and worked : K0RZ 449/459 # 44 and K1FO 559/439 then disaster the elevation screwjack-clamp slipped due to the imbalance and that was that. After repair he hrd JA9BOH, VK5MC with 439, and wkd : ON4KNG 0/0, SM2CEW 559/549 #45, WA4NJP 449/0, DL3BWW 549/539, N4GJV 559/559 a huge signal. On CQ wkd : G4ALH O/O #46, I5CTE O/O, DL4XX O/O (not sure about this), HB9SV 559/559 #48. CWNR I2COR, hrd EA3DXU, wkd in sked PY5ZBU O/O # 49 and WAC, tnx Don!, Nil on sked withs AL7JM, JR9NWC, JH4JLV O/O #50, W0RAP O/O #51, DL8OBU 439/429 r, OE3JPC nil, EA3DXU O-439/O s #52, K5JL 449/559r, I5TDJ 439/449s, N9AB O/M for #54. He would now like to try with some smaller stations 2 yagi etc skeds are always welcome especially by email. Packet radio skeds can also be sent to G0RUZ @ GB7WRG. #19. GBR.EU. He is particularly keen to have skeds outside of sked weekends. tnx fer info Conrad

**G3SEK** reports in Feb skeds nil from IN3KLQ, 9A2AE or 4X1IF, but wkd : only PA3CSG, UT5DL, IK1MTZ, SM4IVE and WA7BBM (449/449) #217. Heard DL9NDD, SM3AKW, NC1I, W7CI, G4ERG and K0RZ. tnx fer info Ian

**IK5WJD wkd :** 29.10.94 OE5JFL 559/549, F1FEN 559/O, DL9KR 569/559, SM4IVE 559/539, F1ANH O/O, DL9NDD O/O, I2COR, 559/539, NC1I 569/559, N2IQU 559/449, KD4LT 559/449, K1FO 559/449, K2UYH O/O, 30.10. SM0PYP O/O, N4GJV 549/449, 26.11. OH2PO 559/449, DJ6MB 449/449, K9ZZH 449/449, K0RZ 449/449, F6CGJ 449/449, 27.11. OK1CA 449/449, G4RGK 339/O, F5MZN O/O, 08.04. SM2CEW 449/449, OK1CA 449/449, 09.04. K1FO 449/449, DL9KR 559/559, DL3BWW O/O. tnx fer info Alex

**JA9BOH wkd :** in April weekend 10 stations. Condx seemed good farady condition for vertical

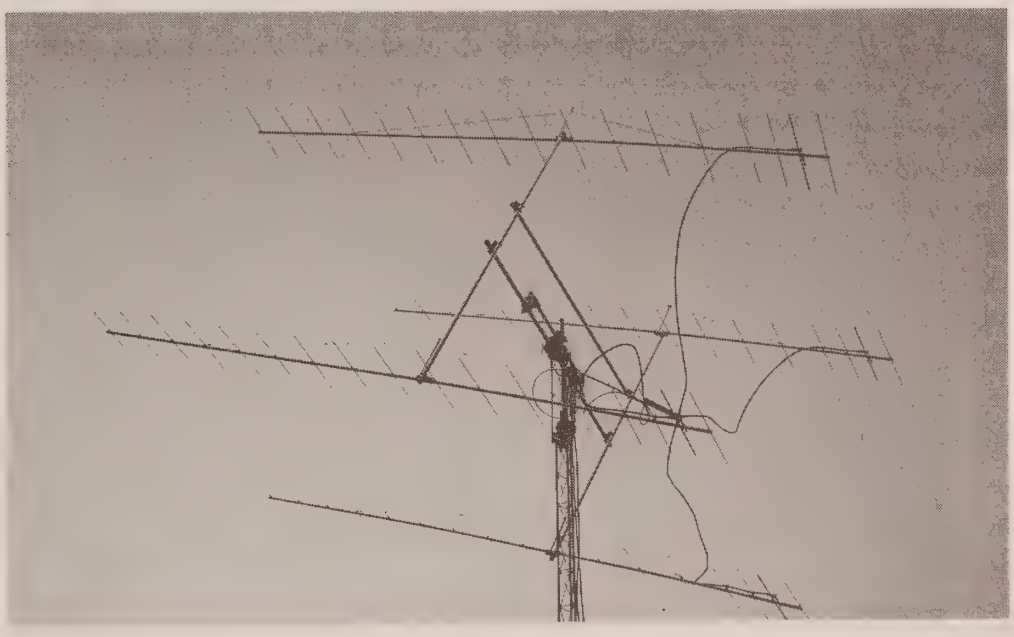
pol, but due to some 2 mtrs skeds, he must QSY some time. 07.04. 4X1IF nil, 08.04.KB2AH nil, K0RZ 439/549, K1FO 549/439, JA4BLC 439/339, OK1CA O/O, ON4KNG O/O. Hrd F6KBI/p (O) working DL9KR, 09.04. CWNR W0KJY(O), WB2VVV nil, JA5OVU O/O, DL3BWWO/O, SM2CEW 449/539, I2COR O/O, DL9KR 569/549. CWNR W0KJY IK6MMJ, JH7PAV JA5YJS QRV?? tnx fer info Kimio



**JH7PAV 8x21el FO 70cm**

**JA5OVU wkd :** 11 Stations in Eu-contest 08.04. K1FO 569/549, DL9KR 579/559, OK1CA O/O, UT5EC O/O, SM2CEW 549/449, 09.04. WA4NJP O/O #76, JA9BOH O/O, EA3UM 549/449, OH2PO 549/O, ON4KNG 449/439, I2COR 549/549, hrd: K0RZ, F1FEN, JR9NWC, W0KJY, VK5MC, HB9SV, 9M2BV, G0RUZ, DL3BWW, JA4BLC, UR5LX, IK1MTZ tnx fer info

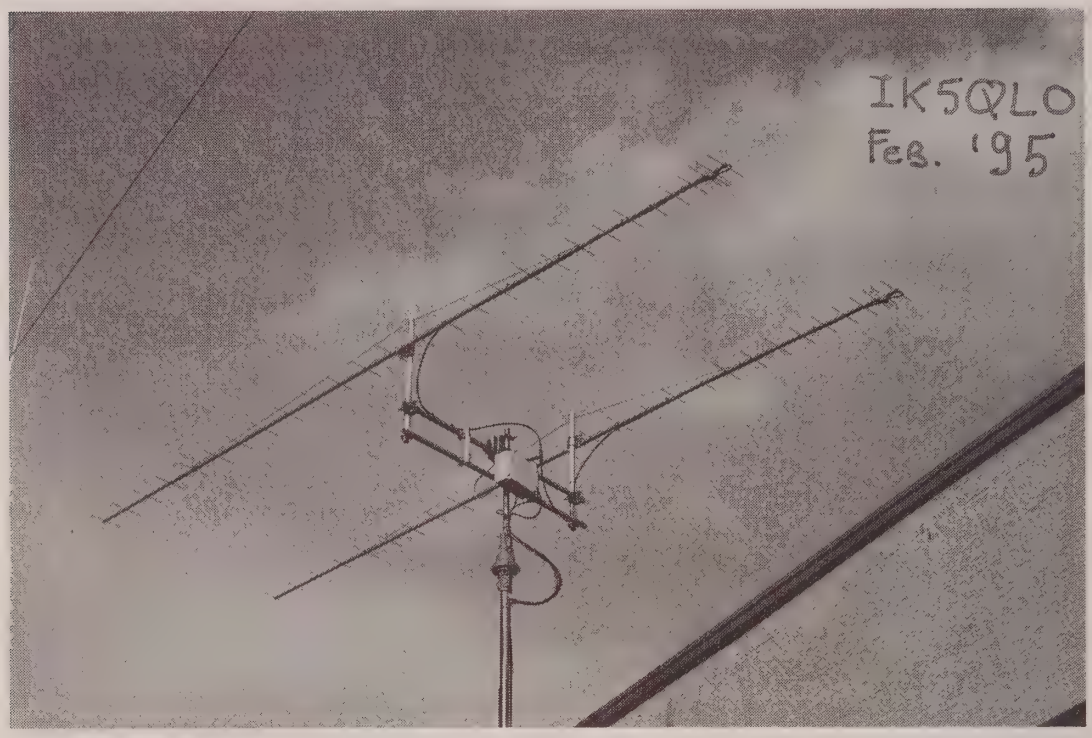
**KD4LT** - Scott's operating time was somewhat limited in January and February due to bad weather and work. Nil was heard from 9A2AE on 1/14 or 1/21 skeds. Scott worked WG3I # 253. Several stations were heard and worked on the second weekend for the Italian EME contest. In February Scott was on for SV1BTR and 9A2AE but heard nil on both. Scott miss skeds with 9M2BV and JR9NWC due to weather. The new dish mount system is now designed and being fabricated and if the weather permits the new system should be mounted in the dish and operating by the April activity weekend. This change will allow Scott to mount his "IMU" feed horn and become active on 23cm. To construct the new feed system, Scott will need to remove the old system and will not be QRV in March. The Email list is continuing to grow weekly. If you have Email via Internet, please send Scott your Email address to be included. There is now lots of information being passed via the Internet. Scott will send the updated list to all when new information is added to it. tnx fer info Scott



**PA3FJY 4x17el mod Cudee 3.6wl**

**OK1KIR wkd :** 11.02. PY5ZBU # 299 DXCC#58 field 40, 12.02. JA5OVU, UT5DL, IK1MTZ, UR5LX and DL8OBU #300. tnx fer info Tonda

**PY5ZBU** Don worked the following stations in




**IK5QLO 2x9wl M2 2m**

February - W0KJY, PA3CSG, DL9NDD, OK1KIR, DL3BWW, YO2IS, UT5DL, IK5WJD, And OE5JFL. Don shares plans for a 7m dish for 70 & 23cm EME and is seeking information on feed systems for both bands. If you have any new ideas, Don would like to here from you. Please send all information you can to Don via his directory address. (via KD4LT) tnx fer info Don

**UA4NM wkd :** 27.11. F1FEN. tnx fer info Vlad

**WG3I reports in Feb**: Condx were fair on the friday night. The usuals and W0KJY were all heard better than O. Then came Saturday: After last months excellent condx it had to average out, and it did, this months condx were awful. Nil was heard from UT5DL,UR5LX, DL3BWW, G0BPU and G3LTF. K0RZ and W0KJY were heard (O) every tx period but was not copying me. Also heard (new) were DL9NDD (549) and G4RGK (559). He called W7CI again with lots of QRZ back but eventually discovered (after 40 minutes) he was not the only one calling him, so gave up. A sked was arranged via 20m net with W7CI for the sunday evening but nil was heard. All in all a dissapointing activity weekend. The one bright spot was that he got a Timewave DSP9+ (after discussing them with K0RZ) which helped pull signals out of the noise very well. He

**F1ANH: 7 m Dish**

**I6PNN 4m dish f/D 0.5 VE4MA feed 13cm/W2IMU 6cm**

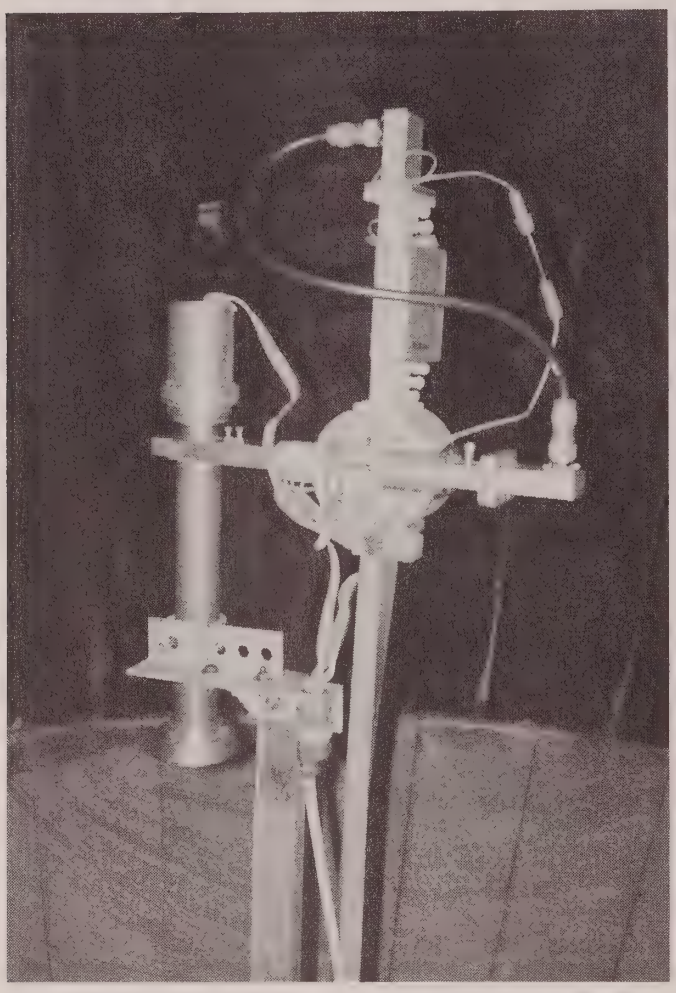
thinks the problem now is that his eme signal resolution capabilities far outmatch my ERP! He will be change the antennas to FO22 before the REF contest and will try four 55 ele yagis for 1296 (+200W &0.4nF). On 19.02. K0RZ (M/O) and W7CI (O/559) were worked easily. Note (especially for those sending qsls) that his address is 18 Lowe Ave, Fairlawn, NJ07410.

## 432&up Netnews

OK1KIR is very sorry that ARRL contest is as the same weekend as IARU Region I UHF/SHF. **OE9PMJ** has some 13cm PA kits for sell TH326/YD1304 50-150W out, 2200-2500MHz tunable, included all required parts allready finished; ask for price& details Phone ++43 55 74 46916 or Fax (work) ++43 55 74 688316 Peter Riml. **IK5WJD** is waiting for qsl from AA4TJ, N2IQU, SM2CEW, UT5DL, UR5LX and PY5ZBU. **NEW** stations were worked : **3A/DJ5MN, DL7AEN** 4yagi 500w JO62, **DL4XX, IK5QLO, JJ1NNJ, JR9NWC, F6KBI/p, IK6MMJ, K9BCT, K6HXW, A22BW**. **OH3LWP** is currently using 4 x 40 el K1FO long-yagis, 500W from a single 4CX250 and 0.35 NF cavity preamp on 432 MHz EME, his address Vaisanen Ari, Matinlahdentie 228, 33720 Tampere, Finland. **EA6/DF5JJ** is now on 2304,

## 1296 MHz

**AA6WI reports :** Lars - AA6IW is currently trying to become QRV on 23cm EME for the 11/12 March European EME contest. Lars will be using a 5 meter dish, VE4MA feed, PMJ Quad Hybrid, and Th-328 water-cooled PA @ 500 watts output. It looks very likely that'll he'll be ready in time. However, Hoppy is sure this will create a lot of confusion on 23cm as Hoppy will also be QRV during the contest from AA6WI. Lars and Hoppy will work out an arrangement where we will spread out a bit frequency wise since we're pretty close to each other. Lar's QTH is Los Altos, California...about 20 miles north of Hoppy's QTH in San Jose. Lars is also in a different grid. We will see who can really copy CW during the contest weekend!! hi. tnx fer info Hoppy



**OK1KIR: 5760MHz Feed with LNA and WG-Switch**

**DJ7FJ wkd :** in DUBUS contest 11.03. F2TU, OE9XXI ssb, LA8LF, JA4BLC, IN3HER, HB9SV, OE5JFL, ZS6AXT, F6CGJ, N2IQU, OK1KIR, KB2AH ssb, AA6WI, WB5LUA, OE9ERC, K2UYH. rig FT736+2x2C39+TH308, ant. 4.5m Andew dish with VE4MA feed. tnx fer info Joe

**OE9ERC wkd :** 11.09.94 DJ5QX #131, 23.10. G4FUF #, JA4BLC, OE9XXI, DJ9DW, DL6YDR, 30.10. PA0PLY #, PA3DZL#, K2UYH, KB2AH, F1ANH, OZ4MM, OZ9AAR, 27.11. HB9BBD, OZ9AAR, LA8LF, ZS6AXT, F6CGJ, DD1XF #, K3EAO #, 11.12. SM5DGX #143, OE9XXI, and nil in sked with UA3TCF. tnx fer info Erich

**OE9XXI wkd :** 11./.12. 03. KB2AH, OZ9AAR, VE6TA, N2IQU, K3EAV, W7GBI, W0KJY, W2UHI, AA6WI, DJ7FJ, F2TU, IK3COJ, DF3RU (439/559) #, JA4BLC, JA8ERE, IN3HER, ZS6AXT, OE5JFL, SM5DGX, I2COR, F6CGJ, VE1ALQ, AA4TJ, OK1KIR, OE9ERC, K2UYH, WD5AGO, VK1VP, SV1OE, IK3GHY, DD1XF, DL0SHF, S57GM, HB9SV, DF9QX, G3LTF and HB9BBD; 14qso in ssb and 80% on lin pol.. all random for 37x25 92500 points. CWNR LA8LF. 09.04. NU7Z 439/519 #181 + State WA, in May EA6/DF5JJ 559/579, N2IQU 569/589, AA4TJ 549/579, KB2AH 57/57, KD5RO 43/57, OZ4MM 54/57, LX1DB 55/57, DF9QX 54/57, ZS6AXT 559/579+44/55, DF3RU 549/579+ 44/56, OZ9AAR 549/559+ 43/53, SM5DGX 449/569, W2UHI 559/589, OK1CAM/O #182 on random, G3LTF 559/579. tnx fer info Peter

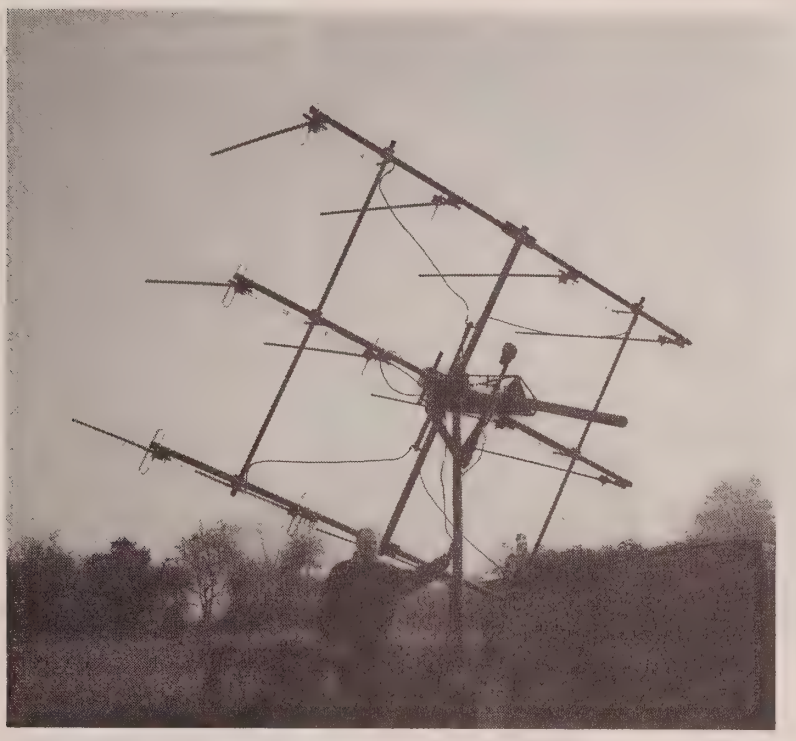
**OK1KIR wkd :** 11./12.02. VE1ALQ #, VE6TA #, VE4MA, SM3AKW, AA4TJ, VE1ALQ, OZ9AAR, W2UHI #, Ref/Dubus contest 11/12.03. N2IQU, DJ7FJ #, ZS6AXT, F6CGJ, OE9XXI, OE9ERC, F2TU, AA4TJ, IN3HER, KB2AH, AA6WI, K2UYH, WD5AGO, K3EAV, LA8LF, W2UHI, JA4BLC, OZ9AAR, JA8ERE #, DD1XF #, OZ4MM, HB9SV, VE1ALQ, G3LTF and DF9QX #119. tnx fer info Tonda

## 2304/2320 MHz

**OE9ERC wkd :** 26.11. JA4BLC cw and ssb with very good signals, JH3EAO, OE9XXI, W4HHK. tnx fer info Erich

**OE9XXI wkd :** 08./09.04. JH3EAO 549/559 #, JA4BLC 559/539, I6PNN 549/549, OE9ERC 54/55, IK6EIW 549/559 #31, GW3XYW 549/549, W4HHK 559/559, OK1KIR 549/549, IN3HER 559/449 and EA3UM 569/449 loudest signal, nil with DF3RU and EA6/DF5JJ; hrd were OH2DG and LX1DB. sun noise at 08.04. 2304 20.7dB, 6.7dB CSG, moon 1.7dB. 23.04. OE5VRL/5 O/O #40, in 05/06.05. EA6/DF5JJ 549/559 #41 and OK1KIR 559/539. tnx fer info Peter

**OK1KIR wkd :** 09.04. 2424/2304 JA4BLC #27, IN3HER, OE9XXI, CWNR EA3UM and W4HHK. tnx fer info Tonda



G3SEK 12yagi 3axes rotable array

## 5760 MHz

**I6PNN:** is now qrv on this band. rig : WB5LUA preamp FHX35+ATF10136 0.85dB; HB Transverter 200mW into RW89 TWT 30W out. Ant. 4 meter dish f/D 0.5 6mm mesh W2IMU feed linear. He has about 12dB sun noise and 0.6dB moon. Amato is interested in skeds. tnx fer info Amato

**OE9ERC wkd :** 15.10. OE9PMJ #1, 17.12. VE4MA #2, OE9PMJ 549/549 and ssb, 11.12. OK1KIR #3. tnx fer info Erich

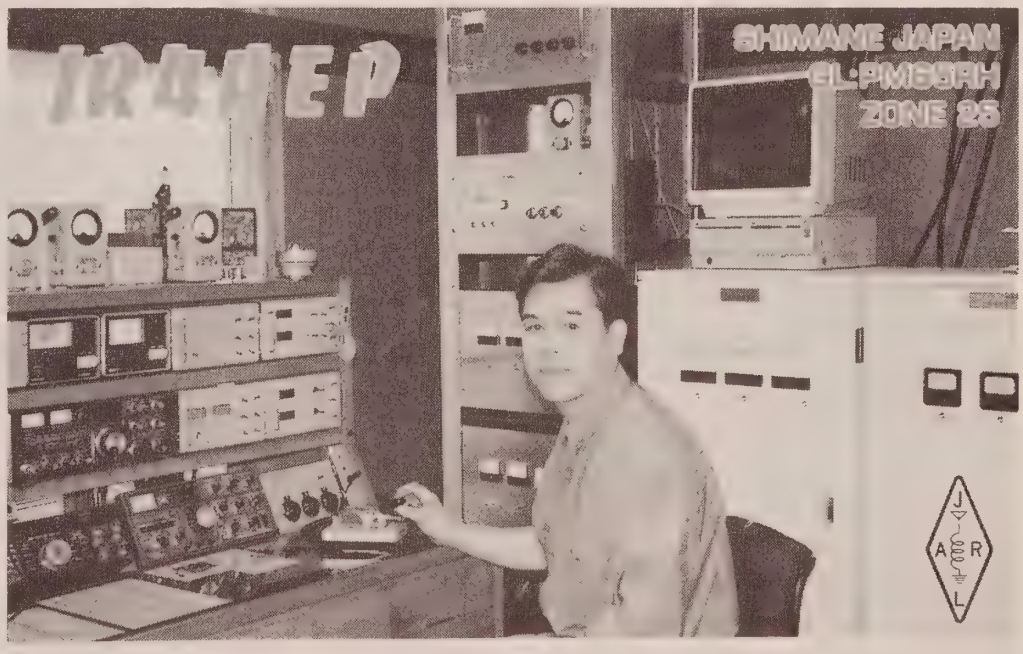
**OE9PMJ wkd :** 14.04. I6PNN 339/559 #5 and country. 23.04. OE9ERC 549/559, 06.05. I6PNN T/O, DL2GSG 549/559, OE9ERC 549/549, OK1KIR 439/449 #6, VE4MA 439/439, 12/12.05. SM4DHN 549/539 #7, OE9ERC 44/44 and I6PNN O/O, tnx fer info Peter

**OE9YTV wkd :** 11/12.05. SM4DHN 449/539, OE9ERC 44/44 and I6PNN O/O #3. tnx fer info Rheinhilde

## 10 GHz

**DJ7FJ wkd :** 29.10.94 OK1KIR, F6KSX, PA3CSG, DL2GSG/p, WA7CJO, G4RFR, OE9ERC all O/O, 14.11. EA7/DL2GSG/p O/O, 15.11. SM4DHN, EA9/DL2GSG/p O/O, 26.11. I4CHY, SM4DHN in ssb, K9KFR, F6CGJ, WA6EXV, G3WDG, G4KGC all O/O, 10.12. S56UUU O/O. rig 4.5m dish 50w. tnx fer info Joe

DL2GSG active in EA-EA9. The 10G EME portable operation idea was born long ago. The first attempts were made in June '94. A crazy idea had Joe DJ7FJ to activate Africa on 10G EME. The easy way was to go to EA9. The first problem was to get enough power on 10G out of a car battery. Two TWTA were combined and he had to buils a




JR4AEP

## F6CGJ: Dishes for 23 and 3 cm

12V TWT power supply. A 1.8m alu. dish were cutted in 3 pieces for better transport, but never reached the gain again. So they had to use a 1.8m glasfiebr dish, but how to transport?. The solution was to rent a campervan. In oct. the station was complete just in time for ARRL. The dish was mounted on a tripod and tracked by hand and moon noise. The moon noise is 0.9dB which is realized with a LNA, transverter, and a moon noise meter, all homebrew. The feedhorn is just the end of a circular waveguide. The system is by accident as good as an optimized VE4MA horn. The power is fed by a waveguide and the TWTA reaches 55W output. During tests it was possible to copy his own echoes but very weak. The dish was fixed on the roof of the camper. After 2500km they reached EA7 from where they made the first QSOs. 14.11. as EA7/DL2GSG/p DJ7FJ O/O, SM4DHN O/M, WA7CJO O/M, G4KGC not complete. Next day they took the ferry to Ceuta; EA9. In the evening of 15.11. they wkd as EA9/DL2GSG/p DJ7FJ O/O, SM4DHn O/M, WA7CJO O/M, form Petra G4KGC no sigs could be received. As usual when you do tricky things you will have some extra problems like storm with gusts or wild dogs which running through your station. The customs officers between Ceuta and Europe haven't took an interest in their rig, but they sent the sniffer dog in the campervan. After this successful test it is demonstrated that you don't have to be a big gun to make nice QSOs, but you will need them for a QSO. tnx fer info Greg

**EA2BK** made their first EME qso during the REF/DUBUS contest on 08.04.95. They wkd DJ7FJ. This was the secound attempt, the first with G3WDG in Feb. was only partial. Also SM4DHN was hrd but Lars went qrt. rig : 3m dish f/D .34

## DUBUS BBS:

DUBUS mailbox service information:

- Tel.: (++ 49 30 455 76 25)
- Speed: up to 16800/ARQ/V42bis. Speed of calling modem will be recognized automatically.
- Services:
  - Bulletin Board/Mail
  - DUBUS News
  - Technical Software
  - EME Skeds Database for 144&432&up
  - EME Sked Utilities (Programs)
  - EME Contest Results (REF & ARRL)
  - European Contest Schedules
  - 10GHz Active Station List
  - European Beacon List
  - 432&up EME adress list
- Access for all who use their call sign.
- Box-Operator: DL7APV or DL4EBY
- Software Maintainance: DL4EBY
- PE1DAB sends the sked database 2m&up from the K4PKV mailbox always in time (Every Monday) from stateside. mny tnx !!!

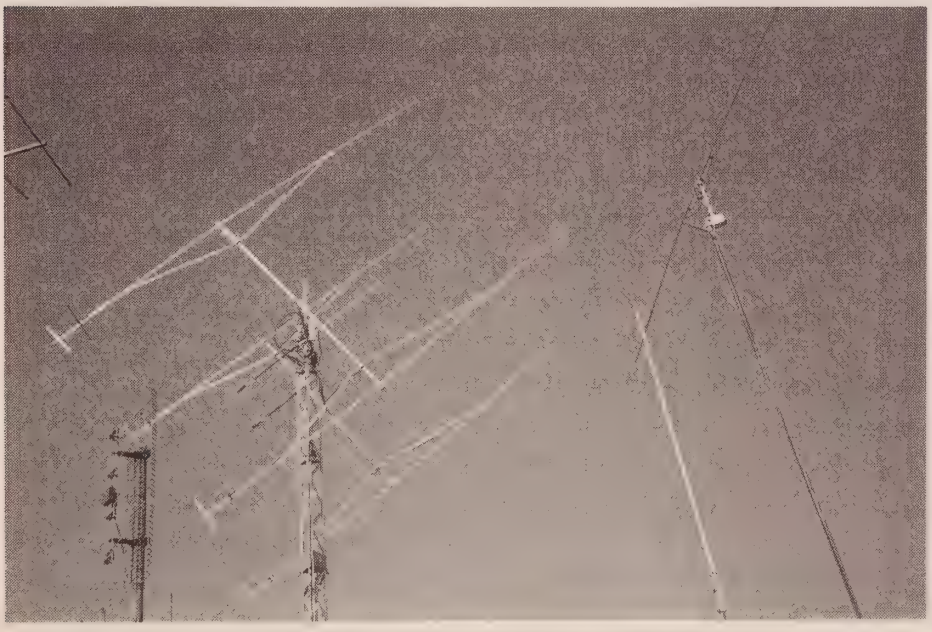
## European EME Contest: F3VS on 2

vertical pol. with scalar ring, TWTA YH1193 20-25W output, ssb transverter and Hemt preamp. For any information about future operations contact George EA2LU via VHF-Net 14.345 or Phone 34 48 264966 between 18:30 and 20:30 UTC. tnx fer info Jorge

**G3WDG/G4KGC** wkd in '95 three times WA7CJO. During the secound qso they used a solid state PA with just over 9W output, and got an M report from Jim. Their own echoeswere quite reasonable too. The PA uses two 5W amplifiers combined using 3dB waveguide combiners, described in one of the WDG technical notes. These are quite a lot easier to make than a magic tee, and have good amplitude balance and isolation. Phase difference between outputs is within 5° of 90. Back to back loss of two splitters together was about 0.4dB, so they are quite low loss. The combined amp was very tame, each half biased up just like when operated single ended. On 02.04. they worked Jim again. They had been transmitting for about 20 minutes for the benefit of GM4ISM who was testing out the recieve performance of the system he is developing. He heard them M, good enough to copy calls and reports, with his 6ft dish. Not bad for near apogee. He has 40W avaible, and hopes to be qrv in a few weeks time for skeds. tnx fer info Petra & Charlie

**OE9ERC wkd :** his first QSOs on 10GHz 29.10.94 WA7CJO #1, DJ7FJ, 30.10. PA3CSG, WA5VJB, G4RFR, K9KFR, 26.11. OK1KIR, G3WDG, G4KGC, SM4DHN, 27.11. F6CGJ, F6KSX #11. tnx fer info Erich

**OK1KIR wkd :** 08.04. DJ7FJ, CWNR F6KSX and SM4DHN. tnx fer info Tonda.



**SV1BTR: 2 m**

## Last

This issue included many pictures from you. I hope you would like it. We will not be back on 432 until autumn with DK0NHF.

***73 Bernd DL7APV***

# European EME Contest

## EME Contest 95

First weekend in March on showed marginal conditions the first night, but improved in the second one. Likewise the second weekend was impaired by some Aurora. Activity on 70 cm was extremely poor. Finally there arrived 31 entries on 2 m, 11 entries on 70 cm, 9 entries on 23 cm, 5 entries on 13 cm and 3 entries on 3cm.

Complete evaluation by DL8HCZ, checked by DL8LAQ. Logs received until May 15th were accepted this time. We hope for more stateside logs next time. Also surprising was the low activity on 70 cm. Joe, DL8HCZ

### Comments

**IK5QLO:** On Saturday condx were quite poor, but they got better on Sunday after 18UT. It was fun anyway even with a qrp-station. cu agn next year!

**SM5MIX: 1 st Place on 2 m**

### Results 144 MHz

| Pos | Call | Points | QSO | Mul | QRO | Sin Mul |
|---|---|---|---|---|---|---|
| 1 | **SM5MIX** | **323000** | 85 | 38 | Y | S |
| 2 | SM5BSZ | 296000 | 80 | 37 | Y | S |
| 3 | I2FAK | 277200 | 77 | 36 | Y | M |
| 4 | F3VS | 205900 | 71 | 29 | Y | M |
| 5 | LA8YB | 147400 | 62 | 29 | Y | S |
| 6 | K2GAL | 132500 | 53 | 25 | Y | S |
| 7 | F6IRF | 86000 | 43 | 20 | Y | S |
| 8 | DL5MAE | 74000 | 37 | 20 | Y | S |
| 9 | JL1ZCG | 59500 | 35 | 17 | Y | S |
| 10 | PA2CHR | 33800 | 26 | 13 | Y | S |
| 11 | S52LM | 30000 | 25 | 12 | Y | S |
| 12 | SM6CMU | 22920 | 19 | 12 | Y | S |
| 13 | PE1DAB | 22000 | 20 | 11 | Y | S |
| 14 | UT1PA | 20000 | 20 | 10 | Y | S |
| 15 | DL/OM9AME | 19800 | 18 | 11 | Y | S |
| 16 | HB9DGX | 18000 | 20 | 9 | N | S |
| 17 | F9HS | 17100 | 19 | 9 | N | S |
| 18 | S51ZO | 16200 | 18 | 9 | N | S |
| 19 | IK5UBM | 15000 | 15 | 10 | N | S |
| 20 | HB9SUL | 14490 | 16 | 9 | N | S |
| 21 | SV1BTR | 13300 | 13 | 10 | N | S |
| 22 | UT5EC | 8800 | 11 | 8 | Y | S |
| 23 | SP5EFO | 7000 | 10 | 7 | N | S |
| 24 | 7K3LGC | 6300 | 9 | 7 | N | S |
| 25 | F6HEO | 5400 | 9 | 6 | N | S |
| 26 | JA4BLC | 4500 | 9 | 5 | Y | S |
| 27 | OZ5IQ | 4000 | 8 | 5 | N | S |
| 28 | F6CRP | 400 | 2 | 2 | N | S |
| 29 | K7JA | 400 | 2 | 2 | N | S |
| 30 | AA4RR | 100 | 1 | 1 | N | S |
| 31 | JH7SIA | 100 | 1 | 1 | N | S |

## 432 MHz

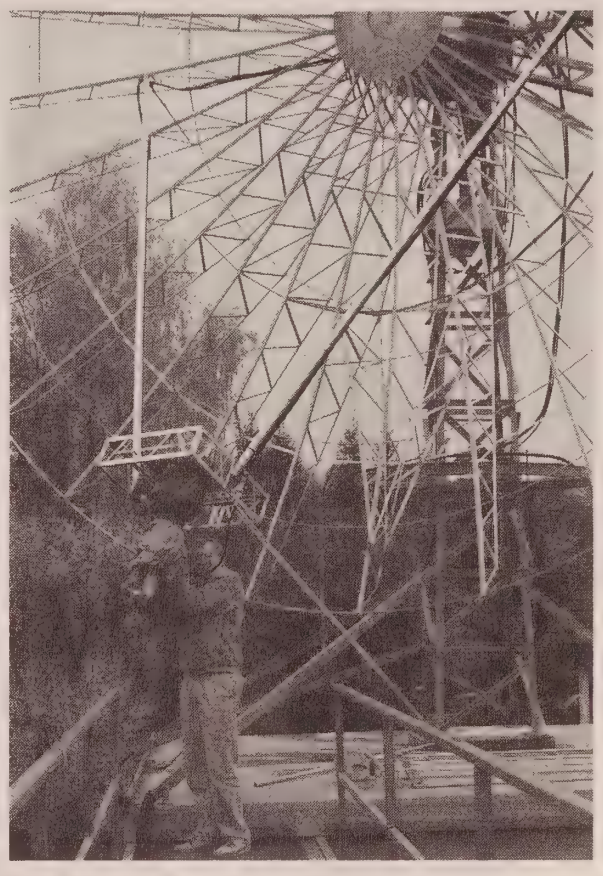
| Pos | Call | Points | QSO | Multi | QRO | Sin/ Mul |
|---|---|---|---|---|---|---|
| 1 | **ON4KNG** | **14000** | 14 | 10 | N | S |
| 2 | UT5EC | 8000 | 10 | 8 | Y | S |
| 3 | IK5QLO | 5600 | 8 | 7 | N | M |
| 4 | JA4BLC | 4900 | 7 | 7 | N | S |
| 5 | DL4XX | 4800 | 8 | 6 | N | S |
| 6 | DK3FB | 4200 | 7 | 6 | N | S |
| 7 | IK5WJD | 2000 | 5 | 4 | Y | S |
| 8 | F6KBI/p | 1600 | 4 | 4 | N | M |
| 9 | S57QM | 1600 | 4 | 4 | N | S |
| 10 | UT1PA | 900 | 3 | 3 | N | S |
| 11 | JJ1NNJ | 100 | 1 | 1 | N | S |

**ON4KNG:** There was Aurora before the contest and also on Saturday. Own echoes loud on Sunday all the time.

**I6PNN:** During the contest generally good condx on both 8th and 9th April. Significant activity on 13cm.

**IK5WJD:** Sorry for few QSOs, but I had poor condx on Saturday. And on Sunday morning moonrise a strong wind made me unable to lift my antenna system.

**JA4BLC:** I am happy to send four band logs. I enjoyed two weekends though the activity seemed a bit low and condx poor. Thank you for the contest.

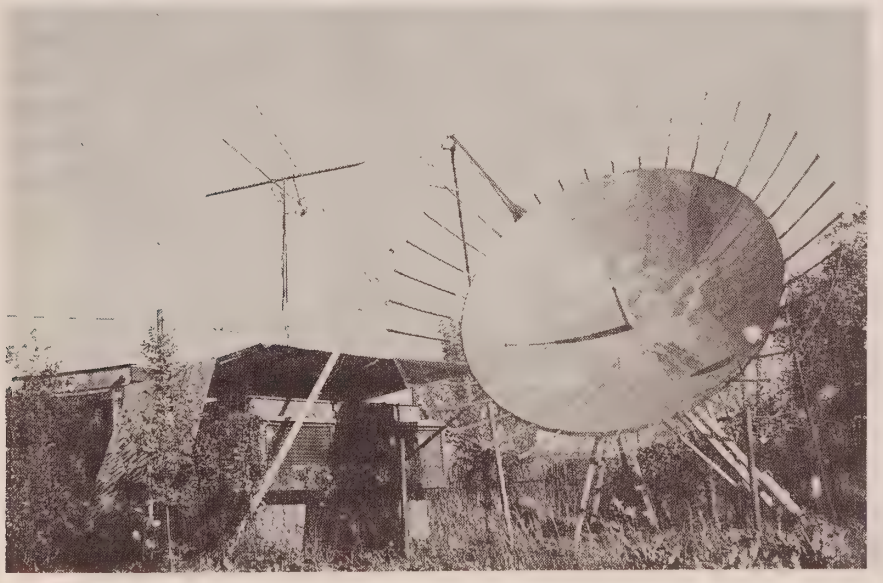


**OE9XXI: 1 st Place on 23 cm**

**F6CRP:** I have no elevation, so I have to wait for the right moment whhen the moon is in the direction of my antennas, hi. Congrats to W5UN and K2GAL for their good receivers, antennas and ears.

**K7JA:** First contest entry with tiny station. I wish there had been more Europeans calling CQ around their moonset. See you next time.

**SM5MIX:** Activity was not so high and we had strong aurora during moonset of 11th March, very bad condx that time. Fast polarity changes said SM5BSZ, but I did not have so much trouble as usually with polarity. I am very pleased with my score and eleven new ones during this weekend. 73s to all. Ulf



**European EME Contest: OK1KIR on 70, 23, 13 & 3**

## 1296 MHz

| Pos | Call | Points | QSO | Mult | QRO | Sin/ Mul |
|---|---|---|---|---|---|---|
| **1** | **OE9XXI** | **92500** | 37 | 25 | Y | S |
| 2 | F6CGJ | 53200 | 28 | 19 | Y | S |
| 3 | OK1KIR | 43380 | 24 | 18 | N | M |
| 4 | F2TU | 37500 | 25 | 15 | Y | S |
| 5 | AA6WI | 34000 | 20 | 17 | Y | S |
| 6 | DJ7FJ | 20800 | 16 | 13 | Y | S |
| 7 | JA4BLC | 15600 | 13 | 12 | N | S |
| 8 | IK3COJ | 4200 | 7 | 6 | N | S |
| 9 | S57QM | 100 | 1 | 1 | N | S |

## 2320 MHz

| Pos. | Call | Points | QSO | Multi | QRO | Sin/ Mul |
|---|---|---|---|---|---|---|
| **1** | **OE9XXI** | **7000** | 10 | 7 | - | S |
| 2 | I6PNN | 2400 | 6 | 4 | - | S |
| 3 | JA4BLC | 900 | 3 | 3 | - | S |
| 4 | OK1KIR | 900 | 3 | 3 | - | M |
| 5 | IK6EIW | 600 | 3 | 2 | - | S |

(Ed.: Congrats for winning 2m, good work! DL8HCZ)

**DL5MAE:** Condx very bad and low acitivity. Long distance stations like VK3AUU, AH6LE and LU7DZ only heard this time. Tnx for organizing this contest.

**SM6CMU:** Unfortunately very QRL during the weekend. Condx not particularly good but ok at times. 2 new stations (now 127 initials).

**SV1BTR:** I found codx very bad, especially on Saturday night with poor signals. The next day in the afternoon they started to get stronger. I hope that there will be more activity next year.

**DJ7FJ:** Super that you took over the REF-EME-Contest. Now we can hopefully expect that an evaluation will be made at all and results published in acceptable time. It was difficult to get stations on 10 GHz active.

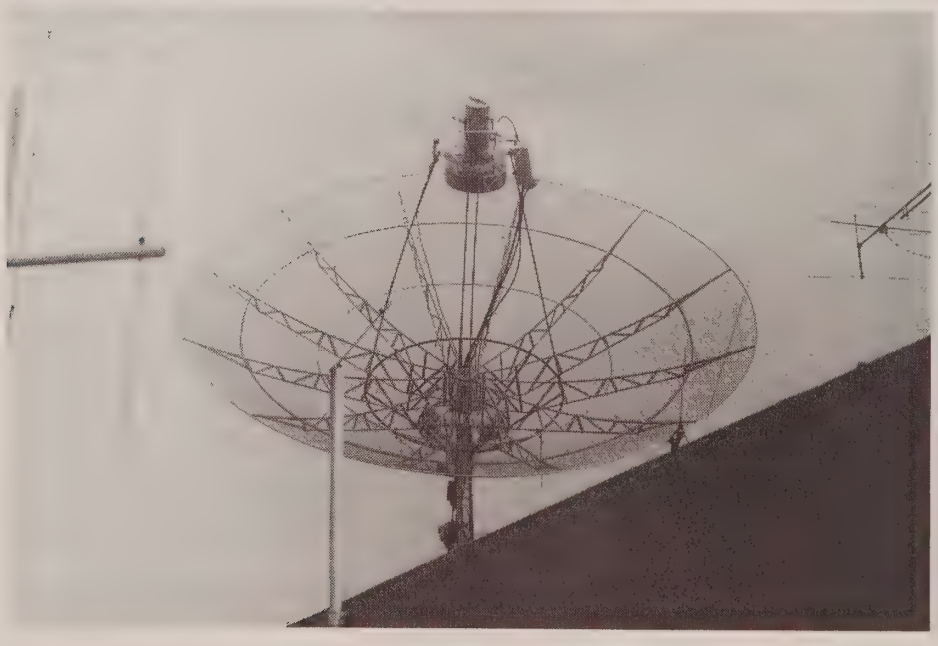
Here some reasons for not getting qrv on 10 GHz:

S53UU: Three months in America. PA3CSG: I will not work new stations. VE7CLD: My preamp is oscillating. WA6EXV: I have a dinner with friends in Norway. WA5VJB: Will go 3 days after the contest to ZL. K9KFR: Elevation drive is broken.

**JJ1NNJ:** 2nd day bad WX, rain bringing high VSWR. Therefore I could not transmit to work DK9KR.

## Certificates and Trophies

Every participant will receive a certificate. The six winning stations will receive a trophy. Just be patient for some 4 weeks, because the trophies have to be engraved with the callsigns and the certificates are just being printed.



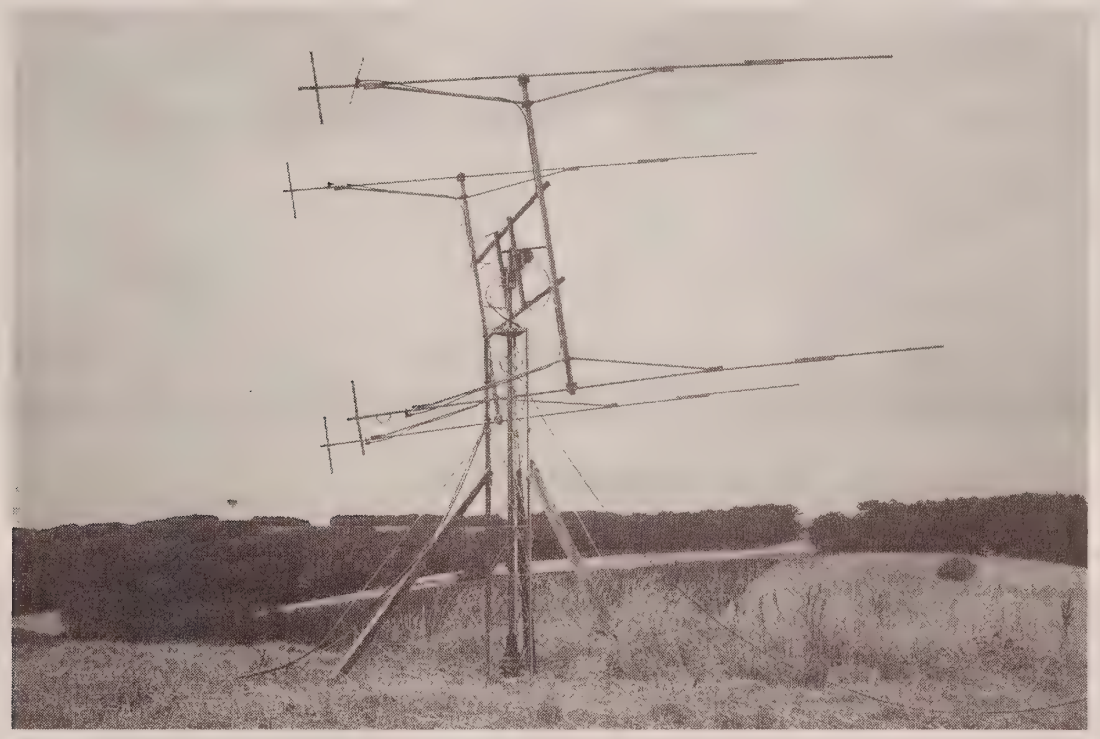
**IK3COJ: 23 cm**

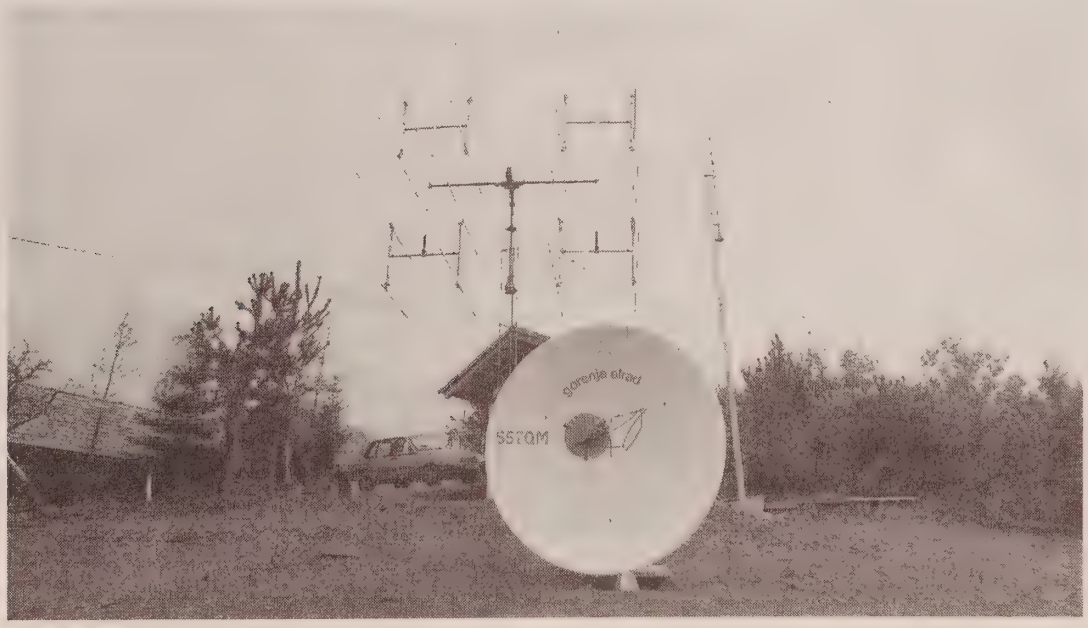
## Proposed contest dates for 1996

First Leg (144/1296 MHz): 30/31 of March

Second Leg (432/2300 & up): 27/28 of April

**F9HS: 2 m**






**S57QM: 70 cm & 23 cm**

**ON4KNG: 70 cm**

**EA2BK (l.) & EA2LU (r.): 3 cm**

# Tropo News

Editor: Joachim Kraft, DL8HCZ

## 2m > 700 km

CT1/DC9KZ/p DF7KF, DH0LS or DL8EBW, IN50XX wkd >500km: 2.5.95 EA7BIH IM87cs Arturo 510km, F9HS JN03gl 758km, 3.5.95 EA3ECE JN01lp 755km, EA7BIH IM89cs 510km, EA7ALL IM87cs 510km, EA5CD IM98bx 570km, EA2LU IN92et 570km, EA2AGZ IN91dv 537km, F1SOH IN93oi 652km, F9HS JN03gl 758km, F1BPK JN03ax 742km, F6FZS IN93qi 665km, F5ADT IN94wo 760km, EA5EIL IM99cd 574km, EA5EI IM98bx 570km, EA5DIT IM99cd 569km. 4.5.95 F6DRO JN03sm 837km.

From IN51XA: 5.5.95 F9HS JN03gl 757km, EA2AWD IN93ci 576km, EA2LU IN92et 566km, F/G8MBI JN04ft 809km, F1BPK JN03ax 739km, F5ADT IN94wo 758km, EA2AGZ IN91dv 536km, F1SOH IN93oi Les 651km. 6.5.95 EB5IJA IM88wv 556km, EA4CAV IN90bt 518km, EA7AJ IM87cs 513km, EA7BIH IM87cs 513km, EA7ALL IM87cs 513km, EB7AQR IM87cs 513km, EA7DYV/p IM87ah 542km, EA5CD IM98bx 572km, EA3ECE JN01li 753km, ED2URP IN92kp 600km, EA2AMC IN92eu 568km, F1SOH/p IN93ld 624km, EA4CAV IN90bt 518km. 7.5.95 EA5HQY IM88vp 563km, EA5FWS IM99mh 631km, EB5BCF/p IM99nt 621km, EA9AI/p IM75iv 618km.

We completed around 150 Tropo QSO with 4 countries (CT, EA, EA9 and F) and there were 34 Locatorsquares worked within 7 days! (IM 67, 68, 75, 77, 78, 79, 87, 88, 89, 98, 99 - IN 50, 51, 52, 53, 60, 61, 62, 63, 70 IN 71, 72, 73, 80, 81, 82, 90, 91, 92, 93, 94 - JN01, 03, 04) Tropo tests with EI5HN in IO61 (1200km) and CT/DL5MAE (1300km) were not ok! It was a pleasure for us, to stay at these wonderful locations in CT!! Kind regards from the Expeditionteam: DC9KZ, DH0LS, DF7KF and DL8EBW

CT1DMK, IN50QP hrd: 6.2.95 15UT G?-Stn from IO70ST with 53. Info via CT4LV

DB3VE, JN39KK, wkd: 2.4.95 1816 - 2132 EI4DQ IO51WU, EI7GL IO51TU, EI3EBB IO51RV, G4RKV JO01OI, G0VKL JO01FJ, G7EXX IO81VQ, G1HQE IO92XA, G3GNR IO70WT, G1HJW JO01IN, G0FIG IO90UU, G7ITU IO91WK, G6YXT IO80FK, G0PQF JO01KU, G3WRD JO02HC, G4XEN IO92PH, G0LCB IO91GO, G7LMT JO01FH, G7NEG IO92NE. Rig: 2C29BA-PA + DL7KM-beam. tnx fr info, Erni

DF0JNA, JO50SU wkd: (OPs DL1ATO, DG0OBA & DH0LS), 446 m asl, 2x9 el, 12 m agl, 250 Watt. 4./5.3.95 9A1BST JO83GX 851 km, IK5IDHM/5 JN54GD 749 km, 9A5Y JN85OO 718 km, IK4WLV JN54XK 714 km, SP5EFO KO02MD 672 km, IW3FLL/3 JN64FU 670 km. tnx fr info, Jens

DF0TAU (Op DL2FDX), JO40QO, wkd: 4./5.3.95 OZ6ABA JO57DJ 758km, HG1DRD JN87KU 690km, 9A1W JN75RS 701km, 9A5Y JN85OO 804km, I4XCC JN63GV 783km, 9A1DS JN73OX 857km, HA1KFR JN86MM 724km, HG5FMV JN97KR 760km. Rig: TS-850 + Transverter + 4CX250B + 2*14ele. tnx fr info, Oliver

DF0RI (Op DL8OBC u.a.), wkd: Rig: TS850+LT2+LNA144+8877+8x9,2x17,17
4./5.3.95 G3IMV IO91OX 678, G6RAF IO92QP 664, F1OWN JN25IT 770, F6KBF/P JN17NP 655, OK1KHL JO78AC 736, IK4WLV JN54XK 877, 9A1EZA JN86HG 846, OK2KCN/P JN89PG 655, OL7Q JN99DQ 696, IK1RAG JN45HA 788, SP9EWU JO90NH 723, OK2KRT JN99BK 698, 9A2AE JN86FF 842, I4XCC JN63GV 947, F1CVU/P JN09BO 689, G4RRA IO91OF 690, G3RHH IO82UB 779, G4AEP IO91NJ 692, G4AEQ IO93PE 673, G4CLA IO92LJ 692. tnx fr info, Uli

DG3FK, JO41RI, wkd: 15.10.94 OK2UCM JN99FN 667, OK2BVE/P JN99GO 671, OK2VQF/P JN99GO 671, OM3CQF/P JN88RT 637, GW3ZTH/P IO81FP 899, OK1FEA JO80FG 506, OK1UOW JO80FG 506, G4CCC/P IO91IH 746, G3KEQ JO01BH 648, G8MYK JO92BJ 786, G1EUC JO01GR 618, G4RKV JO01OI 573, SP2DDV JO93AC 616, G4ASR IO81MX 858, OK2BFH JN99FN 667. 16.10.94 OE1PMC JN88FD 616, G4RRA IO91OF 712, OK2PJW JN89JM 558. 02.12.94 OK2UCM JN99FN 667. 16.04.9 OK1UGA JO80DD 500, OK2PTC/P JN89JM 558. 22.04.95 IK4DCO JN64GB. 25.04.95 I4XCC JN63GV 861, IK4WLV JN54XK 791. Rig: 4CX250 + 17 ele. tnx fr info, Tom

DK1VI, JO31, wkd: 6.2.95 1712-1953 EB1EHO IN73DM hrd 52, EA1EYT IN73DM hrd 51, EB1EHO IN73DM wkd 53/55 QRB 1270 km New ODX on Tropo ! EA1NV IN73EM hrd 53, F6APE IN97QI wkd 56/54. Stn: IC251E + PA 750 W HF, GaAs-Fet Preamp, 16 El. F9FT tnx fr info, Ernst

DK3RV, JO31DG, wkd: 6./7.2.95 JN05, 16, 17, 19, 25, 27, 28, 38, IN73, 93, 94. tnx fr info

DL1EAP, JO31IK wkd:

6.2.95 2012-0021 EB1EHO IN73DM 1280, EB1DNK IN73DM 1280, F6APE IN97QI 698, F1IEH JN08FE 575, F6GPT IN94SW 896, EA2AWD IN93CI 1101, EA1YY IN73AO 1286, F6BYJ JN05FS 780, F5FLN IN94SR 915, F1HNF IN97XF 676, F1IRQ IN96PT 745, EA2ADJ IN93AH 1113, EA2LP IN93AH 1113, F3VX IN97SK 682, EA1NU IN73EM 1275, F6CRP IN96KE 817, F5GXX IN95VK 839, F5GHP IN96LE 813, F5ODJ JN16FI 645, G8ZVM IO70ID 855. tnx fr info, Wolfgang

DL1KDA, JO30FQ wkd >700km: 3.1.95 OZ4TST JO75KD 750, OZ6EVA JO57HJ 794, SM7CMV JO65UK 716. 6.2.95 EB1EHO IN73DM 1215, EA1NV IN73EM 1210, F6GPT IN94SW 821, F6FSK JN04QK 792, F/G8MBI JN04FT 792, EA1YY IN73AO 1223, F5FLN IN94SR 840, EA2AWD IN93CI 1026, F5GXX IN95VK 765, EA1NU IN73EM 1210. 7.2.95 SM7CMV JO65UK 716, OZ4TST JO75KD 750, OZ4EDR/A JO75JE 749, SM7CMV JO65UK 716, OZ4TST JO75KD 750, SM7ALC JO65RL 708. 9.3.95 S53VV JN65UM 787. 23.3.95 GW3ZTH/P IO81FP 705. 2.4.95 EI4DQ IO51WU 1021, EI7GL IO51TU 1038, GW8ELR IO71RX 777. 4.4.95 OZ9IT JO46HW 709, OZ6ABA JO57DJ 787, OZ4EDR/P JO75JE 749, OZ4TST JO75KD 750. 6.4.95 G7KTE/P IO80FI 707. 16.4.95 OK2PTC/P JN89JM 748, OK1OEA JO80FG 709. tnx fr info, Alex

DL2FDX/p, JOP40QO wkd: I4XCC JN63GV 783km, IK4IDP jn54rm 700km. Rig: 15W + 14 ele. tnx fr info, Oliver

DL3YEE, JO42GE wkd: 6.2.95 EB1EHO 55 53 IN73DM 1430 km Rig: 2,5 Watt, 14ele.

DL4KG, JO31NA, wkd:

6.2.95 Nach dem allabendlichen 70 cm-Sked mit G3KPV (IO91LK - 572 km) mit 59 auf beiden Seiten, meldete ON4ZN gute Condx nach Frankreich. Jochen, DJ9DL - JO31NC, war bereits Richtung Frankreich qrv. Wir wechselten kurz einige Worte als pltzlich eine Station in Englisch hereinrief. Auf Rckfrage meldete sich EA1NU (IN73EM). Jochen und ich loggten Antonio mit 55 auf beiden Seiten. fr mich war es ein neues ODX ber 1272 km. Danach gingen noch F6APE (IN97QI - 696 km), F6GCT (JN18NT - 378 km) und F6CRP (IN96KE - 811 km) ins Netz. EA1NU konnte noch 1 Stunde lang mit guten Feldstrken beobachtet werden. Die aktiven Stationen aus Frankreich und Spanien waren leider nicht sehr zahlreich. Mein QTH: Leverkusen JO31NA - 125 mm . NN (Ant 140 m . NN) Rig: TS-850 mit HM Transverter + HM Transistor-PA 100 W Ant: 2x20 Ele. vertikal gestockt tnx fr info, Gerald

F9HS, JN03GL, wkd >800 km: 6.2.95 IO80, IO81, IO82, IO90, IO92, JO01, JO20 and JO22. Odx is G7JBG, IO92VX 1061 km. tnx fr info, Claude

I4YNO, JN54KP, wkd: 28.8.94 DL8AKI/P JO51. 18.9.94 OK1KOB JO70. 5./6.11.94 DF0CI JO51, OK1AQT/P JO70, OK1KKL/P JO70, OK2KJU/P JN89, OK1OEA JO80, OK5VHF/P JO70. 20.11.94 OK1AJY JO70. 3.12.94 DL8AKI/P JO51. 4.12.94 DL9YEY JO41 824. 14.12.94 ON4GG JO20AR 848KM. 7.1.95 DL9YEY JO41. 8.1.95 DL9YEY, DG6PS JO30. 14.1.95 DL9YEY. tnx fr info, Alex

I8MPO. JN70FP, wkd SSB >900-1380km: 15.5.94 EA6VW JM19MP 976. 22.5.94 F1EPB/p JN13GK 1031. 23.5.94 EA3FLX JN01UX 1075, EA3ADW JN11CQ 1032. 28.5.94 F5SJP JN13VQ 941. 1.6.94 EB5IFI IM99WU 1240. 19.6.94

EA6QB JM08QV 1134, EA6PZ JM08RV 1127, EA6AAX JM08QV 1134. 2.7.94 F6KSJ/P JN13VM 936, F6KKH/P JN13ND 978. 3.7.94 F6KBR/P JN12FM 1019. 4.7.94 EA3GDP JN00GQ 1173. 13.7.94 EA3DUY JN12LD 973, EB3DYO/P JN11NU 957, EA3CHN JN11CJ 1031. 14.7.94 EA3CN JN11BI 1083, EA1RT/3 JN11NU 957, EB3ENW JN11BK 1038, EA3AND JN11CK 1031. 16.7.94 EA3FLN/P JN11NV 957, EA6SA/P JM19QS 946. 23.7.94 EB4DYS JN11CK 1031. 24.7.94 EA3ARZ JN11BP 1038, EA3DXU JN11CM 1031. 6.8.94 EA3RCF/P JN12ED 1021, EA6VC JM19, EA6IB/P JM09SC 1115, EB3EOM JN12ND 960, EA3BTD/P JN12GA 1006, EA4EKP/5 JN00DG 1199, EA5GIN/P IM98VP 1274, EA3GFB JN11KX 978, EA3EVJ/P JN02LA 1137, EA3DJL JN11CP 1031. 7.8.94 EA3BB/P JN02SE 1090, EA3AKS JN01UG 1072, F6HTJ/P JN12EL 1025, EA6/HB9FAP/P JN10WA 900. 8.8.94 EA3SCV JN01ND 1122, EA3FLN JN12KA 979, EA3GFM JN11CJ 1031. 20.8.94 EA3BJR JN11BK 1038. 21.8.94 EA3FBO JN11CM 1031, EA3CRI JN11CL 1031. 22.8.94 EA3EAU JN01UF 1073, EA3QD JN11FS 1011. 23.8.94 EA2AGZ IN91DV 1360. 29.8.94 EA3XS JN11DP 1024. 31.8.94 EA5FKW IM98PG 1328. Note: Although last summer I had more than one contact with several of the above EA3s ans EA6s, I have listed only the first QSO I had with each of them during the given time period. Equipment 15.5.-3.8.94 100w out + 13 ele, 4.8.-31.8.94 200w out + 13 ele. tnx fr info

OE1XTU/3, JN77KR wkd >700km: OPs OE1TKW, OE1REC, OE3LHC, OE1MCU. Rig: 1KW, 18ele. 4./5.3.95 DL0OS JO42AH 705, DF0JV JO33XM 807, DL9GJW JO54VC 741, DL1EAP JO31IK 718, PA0JED JO22WA 801, PI50RCG JO22PE 845, PA3CMC JO21WI 764, DF0CG JO31CQ 762, DL0GL/P JO31KP 721, PA3BUT JO21VX 804, PI50ZI/P JO32IK 783. tnx fr info, Michael

PA3BIY, JO22, wkd: 28.11.94 OK1AAZ JN69, OK1XN JO70, OM3CQF JN88. 29.1.94 HA/DL1MAJ JN87. 6.2.95 EB1DNK XD32e, EB1EHO XD32e, EA1YY XD31h, F5RJM ZJ33g, EA2AWD ZD52h, EA2ADJ ZD51g, F/G8MBI AE63h, F1IRQ ZD17j(?), F6ANQ ZE18g, F5FLN ZE28b, EA1BTA XD60b (He used 4 Watt only!), F1ROW ZJ32c, F6CRP ZG65j. tnx fr info

PA3FJY, JO32EH, wkd: 6.2.95 EB1EHO IN73DM, EB1DNK IN73DM, EA1YY IN73AO, F6IRQ IN96PT, F6GPT IN94SW, F5RCB JN06BR, F6DBB IN96NS, F1MRO IN95LQ, F/G8MBI JN04FT, EA2AWD IM93CI, EA1BTA IN73XI, F6CRP IN96KE, F3VX IN97SK, F5IRP JN06WE, F1JXR IN98JN, F6FZS IN93DH, F5GHP IN96LE. 4.3.95 OK1FNX/P JN79IO. 23.3.95 GW3ZTH/P IO81FP, G4UDE IO82KT, G1GFQ IO83PPH, GU3EJL IN89VR, DG1MDN JN58RT. 16.4.95 OK1KJB/P JN79IO, OK1FXX JO70UV. 30.4.95 I4XCC JN63GV, IK4WLV JN54XK, I4GBZ JN54VV HRD. tnx fr info, Dick.

PE1LAU, JO33MD, wkd: 6.2.95 1953-2119 EB1EHO IN73DM 1421km, F/G8MBI JN04ST 1009km, F1MJC JN06SR 814km, F6APE IN97QI 842km, F6GPT IN94SW 1062km, EA1YY IN73AO 1426km, EA2ADW IN93CI 1267km, EA2ADJ IN93AH 1267km, F6BYJ JN05FS 947km. Rig: 120w + 7 ele. tnx fr info, Johan

PI4NYV, JO32FI, (OP PA3FJY) wkd: 4.3.95 OE9DMV JN47, SK7JC JO76, OK1KCB JN78, SP3SUX JO82, OL7M JO80, HB9RHV/P JN37. 5.3.95 OK1KPA JN79, F5MSC/P IN99, OE5XXL JN78, HB9CXR JN47, OK1KJB JN79, OK1AVD JN79, OK1FLY JN79, OK1OXX/P JN79, HB9DGX/P JN47, F5KCR/P JN26, HB9DKZ JN47, F5FNY/P JN36, DK0OG JN68. 6.5.95 G1HXH/P IO85, G0PWE/P IO85, G1KFX/P IO85, OE5XXL/2 JN67, SP3BLR JO72, SM7LXV JO65, SM7JUQ JO65, SM7RYO JO76, HB9CNY/P JN36, OK1KBA/P JN89, DL0DWD JO34, SP1UJU/P JO84, SP1NQN JO84, SP2OFW JO93, GM4YXI IO87. 7.5.95 SP3SUX JO82, OK1KPA JN79, OE3XTU/3 JN77, SP7EBM JO91, SP2SGZ JO82, SP2MKO/A JO93, SP2PIK JO93, SQ3BYC JO91, OK2RAB JN89, OM3KMA JN88, SN7L JO91, HB9AQW JN37, OL7M JO80 + MNI JO70/71, JN69/79. tnx fr info, Dick

UR3EE, KN78 wkd: 9.10.94 2141 YO3DMU KN34BJ, 2236 LZ2FT KN34PC. tnx fr info

US5WU, KO20DI, wkd: 14.10.94 DL8BDF JO43, DJ2XS JO53, DL6BCZ JO43, DJ9YE JO43, G3ZXZ IO93, DL9GJW, DL7AKA JO62, DK5HQ JO53, DL1BBM JO43, DB6LJ JO43, SP7OGP KO01, DL8UNO JO72, DL3KUM

JO64, DL8HCZ JO53, DG8LAV JO44, PE1LAU JO33, SP7DSB IO91, DL7MB JO72, SP6GVU JO81, DF8LC JO53, DL9GKA JO63, DJ7RJ JO53, SP3TYF JO82, SP6MQO JO90, SP6CT JO81, SP3DOQ JO81, SP9GDI JO90, OZ6TY JO55, SP2MKO/A JO93, SP5IDK KO02, SP6RLA JO81, OK2BPR JN99, OK2UFB JN99, OK1UOW/P J+OK1FEA JO80. tnx for info, Boris

## 70cm >500km

DG3FK/p, JO40UJ, wkd: 3.9.94 2353 F5DYD/P JN02QW 1062km. Rig:4x9 ele, 75W. tnx Tom

DJ8ES, JO43, wkd: 6.5.95 1655-2132 DL0UL/p JN48UO 597km, DF1VW/p JN39NR 500km, G4DSP/p JO03CE 621km, G4GCM/p JO02QV 553km, G4LOJ JO02QN 565km, G0VHF JO01PU 600km, DF1IAZ JN49RB 546km, OS6ZT JO10UU 526km. tnx fr info, Wolfgang

DK3RV, JO31DG, wkd: 6.2.95 EA1NU IN73, F1CYB JN17. tnx fr info, Walter

DK9TF, JO31NF wkd: 2103-2307 EA1NU IN73EM, F6APE IN97QI, F1YIN IN96WT, F5GYA JN15MR, F6ANQ IN94RT, F5GXX IN95VK. RIG: FT726R + 2 X 4CX250 + 19 ele tnx fr info, Jürgen

DL2FDX/p JO40QO wkd: 5.2.95 IW3RI JN65RU 608km. Rig: 15w + 21 ele. tnx Oliver

DL3YEE, JO42GE, wkd: 6.2.95 2145-2310 F6APE 55 52 IN97QI 849 km, F6ANQ 559 519 IN94RT 1057 km, EA1NU 52 52 IN73EM 1426 km, F5GXX 58 52 IN95VK 985 km. Rig: 25W, 2 x 28 Ele.

DL4MDQ, JN58RP, wkd >500km: Rig: 2 x 23 ele, TH308-PA. 7.1.95 DL8BDU JO43. 8.1.95 DB8WK JO33, DL3BAL JO43, DG9BEM JO43. 10.1.95 PE1BBI/p JO33. 16.1.95 DB8WK JO33. 20.2.95 PE1CKK JO22. 27.2.95 PA0EZ JO22. 28.2.95 DL6NVC/p JO73. 4.3.95 PA3BPC/p JO21, PA3FPS JO22, PA3GCV JO32, DL1BKK JO43, DK5HQ JO53, DK0SM/p JO53, DF0NF JO44, PA3FPQ JO21, PI4GN JO33. 5.3.95 F5KRC/p JN26, OK2BDQ/p JN99, PA6C JO33, DJ9RX JO43, DG2BCP JO43, DL6NVC/p JO73, ON7WR JO20, IK4DCX/4 JN64. 12.3.95 DL8BDU JO43, DB8WK JO33. 6.4.95 hrd GB3BSL IO81qj at 1940z RST 539; no activity! 16.4.95 DL8QS JO43, DL6BCR JO43, DL0HMB JO53. 29.4.95 DC1HR JO53. 30.4.95 PE1NHS/p JO32. 01.5.95 DG9BEM JO43. 6.5.95 G4CLA/p JO00hv, G0VHF JO01pu, OS6ZT/p JO10uu, IW1QBJ/1 JN44gk. tnx fr info, Max

DL0DK, (OP DG3FK), JO40XL wkd > 500km: 4./5.3.95 OZ6HY JO45WA 505, S53AC JN76GB 597, IW1CLE JN45JD 599, OZ6OL JO65DJ 569, S50C JN76JG 588, OZ1FKZ JO56AB 621, S53M JN86BS 612, 9A1WJN75RS 664, I4YNO/4 JN54OK 678, S51ZO JN86DR 625, OZ2OE JO45VV 602, IK4DCX JN64GA 744. Rig: 4 x 11 ele, PA 4CX250, 940m asl. tnx fr info, Tom

I4YNO/4, JN54OK, Monte Capra, wkd: 4./5.3.95 DL9NDD JN59 571, DL0FLT JN49 602, DH5NAH JN59 585, OE3EFS/3 JN78 523, OE1FCS JN88 588, OE5VRL/5 JN78 504, OK2KJU/P JN89 732, DK2GR JN59 530, DL0DK JO40 679, DG9NCX JN59 604, DK2RY JN59 571, 9A3B JN95 586, OK1KCR/P JN79 687, DC2GY JN48 529, DJ1NY JN49 605, DK2DB JN48 543, OK1KLL/P JN79 667, OK2ZZ JMN89 688, DJ9UI JN59 561, DG1NZ JN59 543, DL5RDW JN68 505, DL0NF JN59 561, DG7SFL JN49 544km. Rig: 3CX800 + 8 x 25ele, 440m asl. Skeds via PR I4YNO via I4EUM or phone + 39 59 236243 after 19z . tnx Della!

PE1LAU, JO33MD wkd: 6.2.95 2132-2326 EA1NU IN73EM 1417km, F6APE IN97QI 842km, F6ANQ IN94RT 1077km, F5GXX IN95VK 1004km. tnx fr info, Johan

US5WU, KO20DI, wkd with 3w + 21 ele: 14.10.94 DB8WK JO33, DK3BU JO33, DL1NTC JO63, DF5LQ JO44, DL3BWW JO72, DL4XX JO43, DK0TU JO62. 15.10.94 OK1UOW/P JO80, OK1FEA JO80, SP3NNH JO81. tnx Boris.

## 50 MHz - Infos

DL1GI, JN38, wkd: 15.5.95 1740-1823 EH7KW IM67, CT0WW-B hrd, EH7KF hrd, EH1BLA/p IN63FK, EH1TA/p IN62BF, EH7BIH IM87CS hrd, EH7PZ IM67XJ, EH7BVD IM77OU. tnx fr info, Ralf

DL5BAC, JO43LG, wkd on 6m: 14.4.95 1652 OZ5AGJ 51 51 JO56 Tropo. 15.4.95 1010-1028 via Es IK0FTA JN61, IK0AKP JN61, IK9EVE JN71, I5VOW JN52, hrd also I0JX JN61, IK0OKY JN61, I8TUS JM89. tnx fr info, Hans

# Meteor Scatter

**Editor: Norbert Göttsche, DL8LAQ**

## VHF Expedition to CT 1995

**IN50XX - Montemuro - 1000m asl (CT/DF7KF or CT/DL8EBW)**

950502

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 0300 | 0400 | DL7VBW | JO62QN | 26 | | 3 | 2 | 1 | nc |
| | 0400 | DD0VF | JO61VC | | | | | nil | tail |
| 0325 | 0417 | IW1AZJ | JN35UB | 27 | 27 | 15 | m | 1 | nc r *1 |
| 0400 | 0432 | DL1KDA | JO30FQ | 26 | 26 | 27 | 23 | 4 | c |
| 0445 | 0517 | DH6JT | JO31 | 26 | 27 | 10 | m | 1.5 | c r |
| 0500 | 0519 | DL1EAP | JO31IK | 26 | 27 | 14 | 7 | 0.5 | c |
| 0520 | 0543 | I2FAK | JN45OB | 28 | 27 | m | m | 12 | c r |
| 0557 | 0623 | PA3FJY | JO32EH | 27 | 27 | 12 | m | 1 | c r |
| 0545 | 0653 | DF1SO | JN48PO | 26 | 27 | 15 | 8 | 3.5 | c |
| 0650 | 0710 | DL2IAN | JN49BC | 27 | 27 | 5 | m | 1 | nc r |
| 0700 | 0800 | DL2DXA | JO61VC | 26 | | 3 | 4 | 1 | nc |
| 0823 | 0844 | DK9OY | JO52CK | 27 | 26 | m | m | 1 | c r |
| 0800 | 0857 | S51AT | JN75GW | 26 | 26 | 6 | 8 | 0.5 | c |
| 0900 | 0936 | S57EA | JN76 | 26 | 26 | 8 | 4 | 1.5 | c |

950503

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 0300 | 0330 | F6DWH | JN19 | 36 | 27 | 16 | 22 | 22! | nc r |
| 0300 | 0352 | DL9YEY | JO41GV | 27 | 27 | 23 | 32 | 0.5 | c |
| | 0400 | DK2PH | JO41GV | | | | | | nil t |
| 0340 | 0405 | F6DRO | JN03SM | 27 | 27 | 9 | m | 1 | nc r |
| 0405 | 0432 | I1DMP | JN35UB | 27 | 27 | 16 | m | 6 | c r |
| 0400 | 0500 | 9A1CCY | JN85OO | | | | | | nil |
| 0442 | 0516 | F5HRY | JN18DT | 27 | 26 | 36 | m | 9 | c r |
| 0500 | 0520 | G4YTL | IO91JU | 27 | 26 | 22 | 28 | 1 | c |
| 0520 | 0600 | S53VV | JN65UM | 27 | 27 | 11 | 16 | 3 | nc t *2 |
| 0522 | 0603 | IW2BNA | JN45ON | 28 | 26 | m | m | 8 | c r *3 |
| 0603 | 0617 | F/G8MBI | JN04FT | 38 | 27 | m | m | 16 | c r *4 |
| 0600 | 0618 | S57TW | JN75EX | 27 | 27 | 20 | 31 | 2 | c |
| 0625 | 0642 | IK1PAG | JN35SB | 26 | 26 | 20 | 4 | 5 | c t *4! |
| 0617 | 0706 | DJ7OF | JO51EP | 37 | 26 | 18 | 10 | 11 | c r |
| 0700 | 0714 | DF5BN | JN49GU | 26 | 27 | 25 | 10 | 2 | c |
| 0707 | 0718 | DJ3MY | JN58JN | 27 | 26 | 11 | 17 | 2 | c r |
| 0722 | 0743 | DL2IAN | JN49BC | 26 | 27 | 7 | 10 | 0.7 | c r |
| 0800 | 0823 | IW1AZJ | JN35UB | 27 | 26 | 18 | 3 | 7 | c |
| 0757 | 0850 | DL0WAE | JO42FB | 27 | 37 | 12 | 11 | 2 | nc r *5 |
| 0857 | 0938 | DK0OG | JN68GI | 27 | 47 | 25 | m | 13 | c r |
| 0900 | 0952 | DK0UB | JO31PK | 36 | 37 | 12 | 8 | 8 | c |

950504

**Expedition to CT (IN51XA): DF7KF, DC9KZ, DL8EBW, DH0LS**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 0300 0323 | DK2PH | JO41GV | 27 | 27 | 11 | 5 | 1 | c |
| 0300 0353 | S53VV | JN65UM | 26 | 27 | 16 | 17 | 3 | nc r *6 |
| 0330 0358 | DL3IAE | JN49LE | 26 | 26 | 5 | 5 | 0.5 | c te |
| 0400 0443 | DL3BWW | JO72GI | 26 | 27 | 7 | 7 | 13 | c odx** |
| 0445 0500 | PA2TAB | JO32GB | | | 1 | 2 | 0.5 | nc t |
| 0500 0513 | DK1KO | JO53CT | 27 | 27 | 6 | 3 | 6 | c *7 |
| 0417 0514 | EA3DXU | JN11CM | 27 | 27 | m | m | 8 | c r |
| 0600 0648 | IC8FAX | JN70CN | 26 | 27 | 15 | 11 | 14 | c *8 |
| 0710 0725 | HB9JAW | JN47PH | 27 | 26 | m | m | 40! | c |
| 0800 0900 | DL2DXA | JO61VC | 26 | 26 | 3 | 5 | 0.5 | nc |
| 0900 0918 | HB9CRQ | JN47CF | 26 | 26 | 11 | 6 | 66! | c *9 |
| 0905 0938 | DJ2JA | JO40IM | 48 | 26 | 15 | 27 | 27! | c r |

**IN50XX - Montemuro - 1000m asl (CW CTDF7KF or CTDL8EBW and SSB CTDH0LS or CTDC9KZ)**

950505

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 0300 0344 | DH6JL | JO31MI | 26 | 26 | 16 | 33 | 1.5 | c |
| 0300 0348 | DL5GAC | JN47SS | 26 | 26 | 19 | 2 | 0.4 | c |
| 0345 0400 | DD0VF | JO61VC | | | | | | nil t |
| 0400 0433 | DK4TG | JO31FF | 26 | 26 | 19 | 10 | 0.5 | c |
| 0400 0448 | DF9KX | JO30FQ | 26 | 26 | 19 | m | 1 | c *10 |
| 0450 0500 | DL1EJA | JO31DS | | | | | | nil t |
| 0435 0503 | DL9NDD | JN59KN | 26 | 26 | 8 | 2 | 1 | nc t |
| 0500 0529 | G6RAF | IO92QP | 26 | 27 | m | m | 2 | c s |
| 0530 0600 | DC6KI | JO30IL | | | | 1 | | nc s t |
| 0600 0612 | I8MPO | JN70CN | 27 | | m | m | 45 | nc s *11 |
| 0615 0631 | I8MPO | JN70CN | 28 | 37 | m | m | 18 | c s r |
| 0632 0700 | DF9QT | JO30OR | 26 | | 4 | 3 | 2 | nc s t |
| 0700 0751 | 9A1CCY | JN85OO | 26 | 26 | 9 | 4 | 21 | c |
| 0700 0800 | DJ1JD | JO52CK | 26 | 26 | 7 | 6 | 60 | nc *12 |
| 0700 0845 | PA2TAB | JO32GB | | | 2 | 2 | 0.5 | nc |
| 0800 0845 | DK2AM | JO43AK | 26 | 26 | 7 | 7 | 0.7 | nc |
| 0845 0930 | DL2DXA | JO61VC | | | | | | nil t |
| 0900 0938 | IK1LGV | JN44JK | 26 | 36 | 12 | 17 | 3 | c |

**IN51XA - Montemuro - 1050m asl (CTDF7KF or CTDL8EBW)**

950506

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 0300 0320 | DL1EJA | JO31DS | | | | | | nil |
| 0300 0333 | DL1EAP | JO31IK | 26 | 26 | 27 | m | 1 | c |
| 0320 0400 | DH6JT | JO31 | 26 | 26 | 37 | 20 | 0.8 | c t |
| 0335 0401 | DL1KDA | JO30FQ | 26 | 26 | 5 | 9 | 2 | c t |
| 0400 0414 | DF5BN | JN49GU | 27 | 27 | 12 | 2 | 6 | c |
| 0402 0442 | DF9KX | JO30FQ | 26 | 26 | 21 | 19 | 1.5 | c t |
| 0415 0500 | DF1SO | JN48PO | | | | | | nil t |
| 0500 0514 | IW5AVM | JN52NS | 27 | 26 | m | m | 5 | c |
| 0515 0536 | IK5JWQ | JN52NS | 37 | 27 | m | m | 12 | c t |
| 0507 0540 | DL9YEY | JO41GV | 49 | 27 | m | m | 33 | nc r *13 |
| 0537 0608 | IK5OIY | JN52NS | 27 | 26 | m | m | 13 | nc t |
| 0550 0623 | EA6VQ | JM19MP | 28 | 27 | m | m | 15 | c r |
| 0610 0624 | S57TW | JN75EX | 27 | 27 | 17 | 6 | 3 | c |
| 0625 0645 | S57EA | JN76 | | | | | | nil t |
| 0627 0658 | I4YNO | JN54KC | 38 | 36 | 17 | m | 12 | c r |
| 0647 0717 | 9A1CCY | JN85OO | 26 | 26 | 6 | 2 | 5 | nc t |
| 0700 0727 | PA2DWH | JO22EB | 39 | 26 | 4 | m | 13 | nc r *13 |
| 0717 0744 | DK9OY | JO52CK | 27 | 28 | 9 | 3 | 3 | c |
| 0730 0753 | DL1EJA | JO31DS | 27 | 26 | 7 | 14 | 2 | c r |
| 0746 0758 | DJ1JD | JO52CK | 27 | 27 | 7 | 4 | 4 | c t |
| 0755 0810 | EA3DXU | JN11CM | 28 | 27 | m | m | 10 | nc r |
| 0845 0945 | I8MPO | JN70CN | 37 | 27 | 8 | m | 15 | nc s r *13 |

**IN51XY - Montemuro - 1050m asl (CW CTDF7KF or SSB CTDC9KZ - DL8EBW flew home after 07UT)**

950507

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 0400 0430 | IC8FAX | JN70CN | | | | | | nil |
| 0400 0443 | DF1SO | JN48PO | 26 | 26 | 4 | 12 | 3 | c |
| 0430 0500 | S51AT | JN75GW | | | | 1 | | 0.2 nc t |
| 0445 0500 | I2FAK | JN45OB | 37 | 27 | m | m | 16 | nc t |
| 0500 0524 | F6DRO | JN03SM | 37 | 27 | 15 | 15 | 5 | c |
| 0500 0542 | DL8LAQ | JO43XU | 26 | 36 | 10 | 4 | 12 | c |
| 0525 0548 | IK5OIY | JN52NS | 38 | 27 | 18 | 22 | 9 | c t |
| 0545 0552 | G4YTL | IO91JU | 27 | 38 | m | m | 2 | c t |
| 0600 0628 | IW1AZJ | JN35UB | 27 | 27 | 18 | m | 41 | c |
| 0630 0658 | IK1LGV | JN44JK | 27 | 26 | 10 | 7 | 1.5 | c t |
| 0700 0713 | PA3FOC | JO21FW | 27 | 27 | 7 | 3 | 3 | c |
| 0715 0728 | PA2DWH | JO22GD | 47 | 36 | 6 | 1 | 28 | c t |
| 0800 0818 | I8MPO | JN70CN | 26 | 26 | 12 | 16 | 10 | c s |

**IN51XA - Montemuro - 1050m asl (CT/DF7KF or CT/DH0LS)**

950508

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 0300 0357 | DK2AM | JO43AK | 26 | 26 | 14 | 8 | 1 | c |
| 0300 0340 | DL2IAN | JN49BC | 26 | 26 | 11 | 25 | 2 | c |
| 0400 0420 | G3WZT | IO90UX | 27 | 26 | 15 | 16 | 1 | c |
| 0400 0437 | DL8EBW | JO31NF | 26 | 28 | 8 | 2 | 1 | c |
| 0420 0455 | G0GMS | IO91UB | 27 | 26 | 4 | 11 | 2 | c t |
| 0437 0500 | DL5GAC | JN47SS | | 26 | 3 | | 0.5 | nc t |
| 0342 0400 | DL3IAE | JN49DE | | | | | | nil t |
| 0500 0600 | DF8LC | JO53GX | | 26 | 4 | 6 | 0.7 | nc |
| 0500 0510 | I2FAK | JN45OB | 27 | 27 | m | m | 3 | c |
| 0510 0542 | DK9ZY | JO40BE | 26 | 26 | 16 | m | 2 | c t |
| 0555 0622 | HB9JAW | JN47CE | | | | | | nil |
| 0600 0645 | DH2OAA | JO53EE | | | 3 | 2 | 0.2 | nc |
| 0622 0657 | IW2BNA | JN45ON | 27 | 26 | 11 | 18 | 3 | c t |
| 0700 0800 | S51AT | JN75GW | 26 | | 11 | 9 | 1 | nc |
| 0800 0827 | 9A1CCY | JN85OO | 26 | 26 | m | m | 8 | c |
| 0852 0920 | S57EA | JN76 | 26 | 26 | 16 | 5 | 0.6 | c r |

**IN50XX - Montemuro - 1000m asl (CT/DF7KF, only one station rebuilt in IN50)**

950509

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 0300 0402 | DK2AM | JO43AK | 26 | 26 | 16 | 5 | 1 | nc |
| 0410 0502 | DL8EBW | JO31NF | 26 | 27 | 16 | 29 | 1 | c |
| 0502 0528 | DJ1JD | JO52OK | 27 | 27 | 10 | 5 | 1 | c |
| 0530 0600 | DL9NDD | JN59KD | | | | | | nil |

Our Rig:

1.) Most on Rndm : Drake TR7 and LT2S, 3CX800, 11el on 12m.

2.) Most on Skeds: IC730 and LT2S, PA 3CX800 one or two times 17el M2 (depending on the sked distance) Gaas-Fets, Laptops, and DTR-MS (digital Tape Recorders) for every station, and of course Dipole and 80W for HF.

Special thanks on this way to CT4KQ, Serafim, who organized all around QTH, Camping Car, Land Rover, discussion with Town Officials etc... Without his warm help, that expedition have not been possible!!

Remarks: ** 2123km! Our odx *1 Pse do not always give rrr with both calls! (eg. rrr iwaazj ctdf7kf !? try with rrr azj rrr). *2 S53VV made Sidescatter (distance at all 2400km!). *3 Many QRM - Someone send 4 periodes MMM. *4 Sometime also weak troposignals. *5 I called nearly 1 hour - why you gave up after 10 min?. *6 We rcvd RRR at min 55, but they were from DH6JL - why???. *7 Wkd F/G8MBI with 529 Tropo after this QSO, hi. *8 Sidescatter over JN16 -wkd F6DRO during the QSO with 519(Tr). *9 Longest Burst during the Expedition! He has received also 15sec - so at all 81sec! *10 Lot of QRM at that QSO. *11 Sri, was wrong procedur - random QSO was ok than! *12 Sri, you have had wrong calls in keyer, hi. *13 Why you gave up after 15min, if you called us in Random??

Hallo dear VHF-Friends, these are the results from the 144MHz VHF-DX-Expedition to Portugal.

We have made some very nice experiences and also did some quite interesting tests! At all we found out, that working random with a parallel station is not as successfull as to run two sked stations at the same time! It was quite interesting to see, that the reflection point for stations in different directions can be the same! So we saw sometimes the same reflection points for stations from DL compared to EA or I, as our antennas where beaming direct to them! This result was not caused by the big horizontal angle of the antenna!

Also we found some very interesting results via sidescatter (S53VV was beaming via JN16 - so the complete distance had to be more than 2400km! Or also IC8FAX made sidescatter over JN53 - complete distance more than 2000km).

Sometimes we got disappointed about the random operation of some stations! Calling 4-5 periodes of MMM - sending RRR and destroying QSOs - or transmitting C/S + Rprt over 4 or 5 periodes when we were transmitting roger rprt for some others ..... is it less experience or is it only the need to make a new one???

We hope that some of you enjoyed our operation (as well the pile-ups in the VHF-Net) and we wish to see you in Weinheim for some discussions!

73 de DC9KZ Angelo, DF7KF Dithmar, DH0LS Jens and DL8EBW Guido.

**DD0VF (JO61VB) wkd on 144MHz:**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 940608 | | | | | | | | | |
| 0400 | 0504 | SM5TSP | JP90 | 26 | 27 | 8 | 13 | 3 | c s |
| 940610 | | | | | | | | | |
| 0900 | 0930 | GU/DC9KZ | IN89 | 29 | 26 | 11 | 9 | 3.5 | c s |
| 940709 | | | | | | | | | |
| 0600 | 0700 | TK/DC3VW | JN42 | 26 | 26 | 6 | 16 | 3 | c s |
| 940725 | | | | | | | | | |
| 2000 | 2100 | SV/DC3VW | KM08 | | | | | | nil s |
| 940811 | | | | | | | | | |
| 0337 | | GB3LER | IP90 | 47 | | 1 | | 35 | bcn |
| 0500 | 0600 | Z32UC | KN11 | 27 | | 3 | | 3 | nc s |
| 2100 | 2200 | GW8ELR | IO71 | 27 | | 3 | 2 | 4 | nc s |
| 940812 | | | | | | | | | |
| 0700 | 0800 | SM3AKW | JP92 | 27 | 27 | 4 | 9 | 7 | c s |
| 0800 | 0900 | SK3MF | JP82 | 26 | | 5 | 10 | 0.5 | nc s |
| 0900 | 1000 | LA0BY/p | JP89 | 26 | | 3 | | 1 | nc s *1 |
| 1100 | | GW0PZT | IO72 | 27 | 27 | 1 | | 14 | c s r |
| 1136 | 1138 | G8TIC/p | IO84 | 37 | 37 | 3 | | 10 | c s r |
| 1204 | | OY/G4DHF | IP61 | 27 | 27 | 1 | | 10 | c s r |
| 1237 | | G6RAF | IO92 | 27 | 27 | 1 | | 15 | c s r |
| 1400 | 1445 | SM4DHN | JP60 | | | | | | nil s |
| 1500 | 1545 | EJ9HW/p | IO43 | | | | | | nil s |
| 2100 | 2116 | GW8ELR | IO71 | 27 | 37 | 3 | 1 | 8 | c s |
| 940813 | | | | | | | | | |
| 0900 | 1000 | SM4DHN | JP60 | 26 | 26 | 4 | | 5 | nc s *2 |
| 1400 | 1430 | IK0IXO | JN52 | | | | | | nil s |
| 940814 | | | | | | | | | |
| 0900 | 0933 | SM4DHN | JP60 | 26 | 26 | 3 | 11 | 22 | c s |
| 1100 | 1205 | SK3MF | JP82 | 26 | 26 | 3 | 2 | 7 | c s |
| 1900 | 2000 | OH8UV | KP34 | | | | | | nil s |
| 941221 | | | | | | | | | |
| 0700 | 0731 | GB3LER | IP90 | 47 | | m | m | 43! | bcn fb |
| 950103 | | | | | | | | | |
| 2157 | 2210 | UT5EC | KN78 | 27 | 27 | 5 | m | 2 | c r *3 |
| 950104 | | | | | | | | | |
| 0330 | 0335 | I8MPO | JN70 | 29 | 39 | 8 | m | 5 | c s r |
| 0400 | 0450 | SM3JGG | JP71 | 27 | 27 | 16 | 2 | 1.5 | c |
| 0500 | 0540 | LA4XGA | JP33 | 27 | 27 | 15 | 11 | 1.5 | c |
| 0600 | 0700 | SM3BIU | JP73 | 27 | 27 | 4 | 2 | 10 | nc |
| 1200 | 1255 | SM3LGO | JP83 | 27 | 27 | 22 | 36 | 10 | c |
| 1800 | 1900 | RW1AW | KP50 | 27 | 27 | 6 | | 0.3 | nc |

Remarks: *1 2050km! Stefan worked random, but was qrv in our sked for 15 min. *2 No final rogers. *3 My first qso in CW. Equipment: IC275, pwrfet PA, 4 x 10ele. Every sked is very welcome! Steffen Minack, Polenzstr. 3, D-01277 Dresden. Phone ++351334254 (home), ++3512589379 (qrl). Thanks for report, Steffen.

**DH6JT (JO31JO / DL34b) wkd on 144MHz:**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 941202 | | | | | | | | | |
| 0500 | | S53VV | JN65 | 26 | 26 | 8 | 8 | 1 | c |
| 941210 | | | | | | | | | |
| 0140 | | 9A5Y | JN85 | 27 | 27 | 5 | 6 | 2 | c r |
| 941211 | | | | | | | | | |
| 2210 | | EA3MD | JN02 | 27 | 27 | 27 | 42 | 2 | c r |
| 941213 | | | | | | | | | |
| 0150 | | YU7FU | KN04 | 27 | 27 | 7 | 9 | 3 | c r |
| 1830 | | S51AT | JN75 | 27 | 27 | 9 | 10 | 2 | c r |
| 959103 | | | | | | | | | |
| 2300 | | IW4DJE | JN64 | 27 | 27 | 4 | 7 | 6 | c s |
| 950104 | | | | | | | | | |
| 0015 | | I4XCC | JN63 | 27 | 27 | 11 | 9 | 3 | c r |
| 0100 | | S53VV | JN65 | 28 | 27 | 11 | 8 | 5 | c |
| 0305 | | I8MPO | JN70 | 27 | 38 | 4 | 1 | 7 | c s r |
| 0430 | | EA3DUY | JN12 | 27 | 27 | m | m | 9 | c s r |
| 950211 | | | | | | | | | |
| 2300 | | LY2BIL/P | KO05 | 26 | 26 | 9 | 28 | 2 | c |

Thanks for info, Thorsten.

**DL8EBW (DL66a/JO31NF) wkd on 144MHz:**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 950224 | | | | | | | | | |
| 0500 | 0524 | LA4XGA | JP33VC | 27 | 26 | 12 | 20 | 2 | c *1 |
| 950303 | | | | | | | | | |
| 0500 | 0531 | LA4XGA | JP33VC | 27 | 26 | 8 | 20 | 1.5 | c *1 |
| 950310 | | | | | | | | | |
| 0500 | 0552 | LA4XGA | JP33VC | 27 | 26 | 12 | 16 | 0.5 | c *1 |
| 950319 | | | | | | | | | |
| 0200 | 0251 | I4XCC | JN63GV | 28 | 27 | 27 | 46 | 3 | c |
| 0310 | 0330 | GET/BCN | JN01RQ | 27 | hrd | 6 | 8 | 1 | MS-Bcn |
| 0400 | 0600 | EA9AI | JM75IV | | | | 4 | | nc |
| 950322 | | | | | | | | | |
| 0500 | 0610 | F/G8MBI | JN04FT | 27 | 26 | 19 | 41 | 1 | nc |
| 950324 | | | | | | | | | |
| 0500 | 0515 | LA4XGA | JP33VC | 27 | 39 | 6 | 6 | 3 | c *1 |
| 950331 | | | | | | | | | |
| 0400 | 0451 | LA4XGA | JP33VC | 26 | 26 | 6 | 23 | 1 | c *1 |
| 950414 | | | | | | | | | |
| 0500 | 0600 | OE6IWG | JN77PK | 26 | 27 | 6 | 11 | 0.7 | nc |
| 0600 | 0631 | LA4XGA | JP33VC | 28 | 27 | 12 | 10 | 1 | c *1 |
| 950419 | | | | | | | | | |
| 0400 | 0442 | IW1AZJ | JN35UB | 26 | 26 | 6 | 8 | 1.5 | c |
| 950420 | | | | | | | | | |
| 0100 | 0135 | LY3BF/p | KO25OL | 26 | 26 | 14 | 28 | 1 | c #456 |
| 950421 | | | | | | | | | |
| 0400 | 0453 | LA4XGA | JP33VC | 27 | 27 | 11 | 26 | 1 | c *1 |
| 950423 | | | | | | | | | |
| 0600 | 0720 | F/G8MBI | JN04FT | 27 | 27 | 20 | 40 | 0.7 | c? *2 |
| 0801 | | LY3BF/p | KO25OL | 47 | hrd | 1 | | 100! | UFB! |
| 950508 | | | | | | | | | |
| 0405 | 0448 | CT/DF7KF | IN51XA | 28 | 26 | 14 | 20 | 2 | c *3 |
| 950509 | | | | | | | | | |
| 0410 | 0502 | CT/DF7KF | IN50XX | 27 | 26 | 16 | 32 | 2 | c #458 |
| 950514 | | | | | | | | | |
| 0425 | 0502 | EA6FB | JM09SC | 27 | 26 | 11 | 21 | 0.6 | c tail |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 0502 | 0601 | OH2KKP | KP20MH | 26 | 26 | 11 | 14 | 1 | c *4 |
| 0645 | | EI5HN | IO53MH | 28 | hrd | | | | FB! |

Remarks: *1 Regular sked with Geir (1320km), to test MS-condx. *2 I was transmitting "SSS" missing code for rprt - but reply was "RRR" so the QSO takes 85 minutes to get sure that I was needing report and no rogers , hihi! *3 I came home 7th of May at 20 local - so I had the oportunity to work 'my own' expedition, hi - In CT it was much easier to copy reflections because of the low noise, than from at home. Now I think to have 3 weeks holiday, but the chief in my office says ... sri, hihi! *4 He ran only 30 W into 4 times 10ele! Congrats dear Tuomas!!!

Rig: FT-726R modified (CF300), 4CX250b abt 350W, 11ele FlexaYagi, preamp MGF 1302, DTR-MS tape recorder (made by DF7KF) RX max 5000lpm, OH5IY Compact-MS-Soft Version 4.2f. Every sked for MS, also with stations I worked before is very (!) WELCOME!!! Thanks for the report, Guido.

**I4YNO (JN54KP) wkd via MS:**

941120

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 0500 | 0605 | UR3EE | KN88 | 26 | 26 | 4 | 20 | | nc |

941211

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 0500 | 0530 | OZ8ZS | JO55 | | | | | | nil |
| 0600 | 0700 | DL1SUN | JO53 | 26 | 26 | 2 | 6 | | nc |

941214

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2203 | 2218 | DG1VL | JO61 | 27 | | | | | nc r |

Heard on the evening of the 14th Dec. 94 on 144.200 on random the following stations: DK2PH, ON4GG (also via Tropo), G4RKV, DL3LBK, DJ3LE and DL9DBJ.

950103

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2300 | 2317 | LA2PHA | JO38 | 26 | 37 | 3 | 11 | | c |

950104

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 0021 | 0025 | OZ9FW | | 28 | 27 | | | | c? r |

Heard during Quadrantids on 144.200: SM6CEN, SM0EJY, SP2NJI, G4RKV and DL9DBJ.

950129

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 0700 | 0735 | DL8EBW | JO31DL | | | | 2 | | nc |

Thanks for report, Alex.

**LY3BF (KO25OL) wkd on 144 (in CW):**

959419

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 0500 | 0600 | PA3BIY | | 27 | 27 | | | | c |
| 0600 | 0700 | S53VV | JN65UM | 27 | 27 | | | | c r |

950420

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 0100 | 0200 | DL8EBW | JO31NF | 26 | 26 | 4 | 13 | 1 | c |
| 2000 | 2025 | YU7EW | | 27 | 27 | 4 | 15 | 5 | c r |

950421

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 0200 | 0220 | DL9YEY | JO41GV | 27 | 26 | 5 | 6 | 1 | c |
| 0900 | 0935 | DL2DXA | JO61WO | 26 | 27 | 4 | 13 | 2 | c |
| 1030 | 1037 | YU7MS | | 26 | 26 | 4 | 5 | 1 | c r |

950422

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2000 | 2100 | S57TW | JN75EX | 26 | 27 | 8 | m | 2 | c |
| 2100 | 2200 | IW2BNA | JN45ON | 26 | 27 | 12 | m | 3 | c |
| 2237 | 2255 | DF7KF | | 27 | 27 | m | m | 1 | c r |
| 2257 | 2310 | OE3JPC | JN88EB | 27 | 27 | m | m | 2 | c |

950423

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 0000 | 0045 | G3WZT | IO90UX | 27 | 26 | 4 | 8 | 3 | c |
| 0100 | 0127 | PE1LWT | | 37 | 37 | 7 | m | 4 | c |
| 0130 | 0145 | PA3FPQ | | 28 | 37 | 7 | 13 | 3 | c r |
| 0400 | 0442 | I4XCC | JN63GV | 37 | 38 | 15 | m | 31 | c |
| 0730 | 0747 | DL1KDA | JO30FQ | 26 | 26 | 6 | 8 | 2 | c |
| 0750 | 0757 | DH2OAA | | 27 | 27 | 5 | 6 | 1 | c r |
| 0815 | 0837 | DK9OY | | 28 | 38 | m | m | 4 | c r |
| 0857 | 0930 | DH6JT | | 37 | 27 | m | m | 15 | c r |
| 0930 | 0940 | DL8GP | | 27 | 27 | m | m | 20 | c r |

**LY2BIL wkd on 144 MHz MS CW:**

950420

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 0500 | 0600 | DK2PH | | 26 | 26 | 4 | 30 | 1 | c |
| 0600 | 0733 | DH6JT | | 26 | 26 | 4 | 25 | 1 | c |
| 0745 | 0820 | DJ3MY | JN58QD | 26 | 37 | 6 | 18 | 1 | c r |
| 0837 | 0900 | DD0VF | | 26 | 27 | 4 | 13 | 1 | c r |
| 1200 | 1250 | S51AT | JN75GW | 26 | 26 | 3 | 14 | 1 | c |
| 1347 | 1410 | DK0OG | | 26 | 26 | 12 | 38 | 2 | c r |
| 1900 | 2000 | YU7BCL | KN05FW | 27 | 27 | 6 | 20 | 5 | c |

950421

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 0500 | 0540 | PA2DWH | | 26 | 28 | 8 | 40 | 3 | c |
| 0600 | 0620 | DJ1JD | | 26 | 27 | 7 | m | 1 | c |
| 0635 | 0655 | DJ7OF | | 27 | 26 | 8 | m | 3 | c r |
| 0700 | 0735 | G0GMS | IO91UB | 36 | 26 | 4 | 9 | 6 | c |
| 0847 | 0900 | DH2OAA | | 26 | 27 | 11 | 23 | 2 | c r |

950422

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 0100 | 0200 | DL9GJW | JO54WC | 26 | 26 | 4 | 6 | .5 | c |
| 0200 | 0230 | DL1EAP | | 27 | 26 | 8 | 18 | 1 | c |
| 0500 | 0530 | IW1AZJ | JN35UB | 27 | 26 | 6 | 16 | 3 | c |
| 0530 | 0545 | DL5MAE | | 27 | 27 | 8 | m | 3 | c r |
| 0600 | 0627 | IW1CGB | JN35VD | 26 | 27 | m | m | 4 | c |
| 0700 | 0725 | IK1EGC | JN35SD | 26 | 26 | 4 | 12 | 1 | c |
| 0800 | 0900 | PA3FOC | | 26 | 26 | 4 | m | 0.5 | c |

NC: DL2IAN, PA3BZL, DJ5RE, DL7VBW, OK1KF, G0CUZ, G0FIG - sorry. Rig: FT-736R, PA 800W, 11el at 12m, OH5IY v4.2, UHER 4000. Comments: Thanks to Mr & Ms Cesunas for all care at their beautifull farm 195 m asl. What next? Maybe KO35 or KO34. 73 Rytis LY2BIL@LY1BZB.

**PA3FJY (JO32EH) wkd on 144MHz:**

950102

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2205 | 2330 | S51AT | JN75 | 28 | 27 | 51 | 85 | 1 | c r |

950103

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1535 | 1600 | SM2CEW | KP15 | 27 | 39? | 13 | 21 | 5 | nc r |
| 2055 | 2137 | RU1AA | KO59 | 27 | 27 | 32 | 75 | 10 | c r |

950104

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 0000 | 0025 | US5WU | KO20 | 28 | 28 | 24 | 26 | 4 | c |
| 0530 | 0605 | S57CA | JN76 | 28 | 37 | 36 | 32 | 5 | c r |
| 0700 | 0800 | JX7DFA | IQ50 | | | | | | nil |
| 0809 | 0825 | 9H1PA | JM75 | 27 | 27 | 11 | 12 | 8 | c r s *1 |

950117

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 0700 | 0748 | F/G8MBI | JN04 | 27 | 27 | 30 | 118 | 1 | c |

950501

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 0645 | 0755 | I5YDI | JN54 | 27 | 26 | 34 | 85 | 3.5 | c r |

950502

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 0600 | 0635 | CT/DL8EBW | IN50 | 27 | 27 | 28 | 63 | 4 | c r |

Remarks:*1 He is absolutely sure that he was not QRV at that time, is there anybody who has perhaps more info???

Equipment: 350W, 4 times 17 ele modified CueDee with elevation. Maximum speed up to 2000 lpm RX/TX. Skeds up to 1500km are no problem, especially in CW. Longer distances between QTF 0 and 140 degrees are difficult because of local 'mountain' (75m high). During summertime most days free from 04 - 05 UTC. Look for me on random freq. 144.100 during the weekend between 04 and 07 UTC. So, wishing you good luck in MS! 73 de Dick. Address: D.G.A. van der Knaap, Raalterweg 33, 7451 KZ Holten, Netherlands. Telephone ++5483-63742 (17-21 UTC).

## Results of S50C - Dream Team activity during the Perseids shower in 1994

**S50C (JN76JG) wkd on 144MHz:**

940804

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2025 | | UT5ER | KN78ER | 27 | 27 | 4 | 25 | 1 | cw |

940805

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 2125 | | DK8LV | JO44SJ | 26 | 26 | | 20 | | cw |
| 2225 | | G0FIG | IO90UU | 26 | 26 | 2 | 20 | 2 | cw |
| 2347 | | SM7TUG | JO67SJ | 27 | 26 | 2 | 10 | 15 | ssb |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 940806 | | | | | | | | |
| 0920 | OH5IY/4 | KP31JK | 26 | 26 | | 20 | | cw |
| 940810 | | | | | | | | |
| 2227 | ON1ALJ | JO10VV | 26 | 27 | 2 | | 3 | ssb |
| 940811 | | | | | | | | |
| 0158 | SM7TUG | JO67SJ | 26 | 27 | | | 8 | ssb r |
| 0347 | PA3FOC | JO21FW | 26 | 46 | | | 5 | cw r |
| 0634 | G6RAF | IO92QO | 27 | 37 | | | 30 | ssb r |
| 0650 | G4AEP | IO91NJ | 27 | 27 | | | 25 | ssb r |
| 0650 | F6CBH | JN19 | 27 | 27 | | | 25 | ssb r |
| 0700 | G8TIC/p | IO84 | 27 | 27 | | | 15 | ssb r |
| 0822 | UR5M | KN99FD | 26 | 27 | 1 | 13 | 9 | cw |
| 1045 | UT5JCW | KN64RO | 26 | 26 | 1 | 7 | 4 | cw |
| 1200 | US5CCO | KN59XG | 27 | 27 | 2 | 10 | 1 | cw |
| 1612 | G4XBF/p | IN79JX | 38 | 38 | 3 | 22 | 11 | cw |
| 1930 | SM7SJR | JO87FA | 26 | 26 | 3 | 21 | 18 | cw |
| 2300 | G4ZAP/p | | 27 | 26 | | | 10 | ssb r |
| 940812 | | | | | | | | |
| 0030 | GM4VVX | IO87WA | 37 | 37 | 3 | 11 | 5 | cw |
| 0601 | G8XVJ | IO83RJ | 27 | 27 | | | 10 | ssb r |
| 0844 | OZ1BVW | JO45SL | 27 | 27 | | | 7 | ssb r |
| 1122 | EA6/HB9FAP/p | JN10WA | 37 | 47 | 5 | 12 | 25 | cw |
| 1847 | US1VQ | KN58XA | 26 | 27 | 2 | 16 | 5 | cw |
| 2255 | G8TIC/p | IO84 | 39 | 39 | | | 15 | ssb r |
| 940813 | | | | | | | | |
| 0006 | PA4FOC | JO21FW | 39 | 37 | | | 60 | ssb r |
| 0006 | GW4VEQ | | 39 | 38 | | | 60 | ssb r |
| 0006 | G4ASR | IO81MX | 27 | 37 | | | 60 | ssb r |
| 0006 | G1AAR | | 27 | 27 | | | 60 | ssb r |
| 1233 | G4SWX | | 59 | 59 | | | 25 | ssb. |
| | | | | | | | | 300 |

NC skedules: F6IFR and G4ASR. NIL skedules: RA3TES, LZ1ZX, RU3ZD, US1VQ and EA3FLN. On random frequency were a lot of QRM especialy during reflections. This year no special maximum were noticed. During the night was static up to 9+20dB! Equipment: Kenwood TS-711E, preamp BF981, PA 2 x 4CX250B, 4 x 15ele CueDee. Our location was on Mt. Menina (JN76JG), 1508m asl. 73 de S50C. Thanks for report.

# MS-Address-List

## (Revision Date: 15.X.1994)

| | | | |
|---|---|---|---|
| 9H1BT | HV03E | JM75 | P. GALEA, 94 BOSKETTO RD., RABAT, |
| 9H1CD | HV03E | JM75 | H.G. SOUCHET, DAVIS 29/2, SAN GWANN, |
| 9H1CG | HV13B | JM75 | J. BRINCAT, P.O.BOX 10, ZABBAR, ++685993, |
| 9H1GB | HV13A | JM75 | M. GRECH, TAL-GRAZZIA, dawret l-imqabba, MQABBA, ++827997, |
| CT1WW | WB63B | IN61 | T. J. FREDERICO, NAGOSELO DO DOURO, 5130 S JOAO DA PESQUEIRA, |
| DB4VQ | DJ66H | JN39 | G. HECKENHAHN, SCHEIDTERSTR. 35, 66133 SAARBRÜCKEN-SCHEIDT, ++681818777, SSB ONLY |
| DB5ML | FI67G | JN58 | M. LESSIG, AM DRUDENBOGEN 19, 82256 FÜRSTENFELDBRUCK, ++4125931, SSB ONLY |
| DC6DY | DL47G | JO31OK | ANTON PICKHARDT, HOFSTEDER STR. 24, 44791 BOCHUM, SSB ONLY |
| DC6KI | DK44A | JO30 | W. RÖSSLER, DÜRENER STR. 53, 53947 NETTERSHEIM, ++24861889, SSB ONLY |
| DC7OH | GM47G | JO62OK | ERIC DIETERLE, BERLEPSCHSTR. 3, 14165 BERLIN, ++308156975, |
| DC9YC | DL47C | JO31 | D. KLEIN, DURCHHOLZER STR. 195A, 58456 WITTEN, ++230277911, |
| DD0BI | DN48A | JO33 | T. FRIEDRICHS, BIRKHAHNWEG 4A, 26603 AURICH, ++494165312, SSB ONLY |
| DD0VF | GL79C | JO61VB | STEFFEN MINACK, POLENZSTRAßE 3, 01277 DRESDEN, ++3512329379, PHONE QRL! SSB ONLY, SKEDS VIA DL5DTA |
| DD5TD/A | EJ14H | JN49HU | D. PLESSE, HEBBELSTR. 3, 64291 DARMSTADT, ++6151375269, SSB ONLY |
| DF1CF | FH23J | JN57 | J. HEINZE, MEMERSCH 16, 87466 OY-MITTELBERG, ++8376404, |
| DF1IAZ | EJ65D | JN49LD | RALF HAUEISEN, FRIEDLIEBSTR. 16, 75050 GEMMINGEN, PR @DB0RBS.#BW.DEU.EU |
| DF1OC | FM44E | JO52 | T. WILM, KANTALLEE 5, 38440 WOLFSBURG, |
| DF1SO | EI37A | JN48 | D. BREDIN, GARTENSTR. 12/1, 72663 GROSSBETTLINGEN, ++702243661, |
| DF3RU | FJ49J | JN59 | K. SCHMIDT, MÖRSWINKEL 1, 92278 ILLSCHWANG, ++9666328, |
| DF4LY | EO38G | JO44 | M. KUROCK, WIESENWEG 6, 24850 HÜSBY, |
| DF5BN | EJ13B | JN49 | W. MENDEL, GEORGSTR. 3, 64347 GRIESHEIM, ++615578487, |
| DF5DE | EK02H | JO40 | K. O. HERLING, KATZENBACH 12, 57339 ERNDTEBRÜCK 1, ++27532513, |
| DF6LO | FM62G | JO52CE | M. KUHN, SPECKEN 4, 38272 BURGDORF-BEREL, ++53471995, CW 1200LPM SSB ONLY RANDOM |
| DF6NA | EJ | JN49 | RAINER ALLRAUN, TRAUTENAUER STR. 12, 97074 WÜRZBURG, |
| DF6OB | FM44C | JO52 | M. KÜHLE, CRANACHWEG 2, 38448 WOLFSBURG, |
| DF7DJ | DL39A | JO31 | H. ASCHHOFF, BERGKAMENERSTR. 76, 59174 KAMEN, ++230713786, |
| DF7IT | EJ34G | JN49 | V. WINTERSCHEID, OBERTORSTR. 7, 69469 WEINHEIM, ++620144844, PHONE NO. OF DL0WH SSB+CW 3000LPM |

| | | | |
|---|---|---|---|
| DF8LC | FN03A | JO53 | L. BEYER, 23623 LEBATZ, ++45253589, CW 1500LPM EME ON 2M+70CM |
| DF9CY | FO41H | JO54AL | C. PETERMANN, BUSCHHECKENWEG 22, 24229 KRUSENDORF, ++43081012, MS ON 2M+70CM |
| DF9OX | FM | JO52 | A. KLINGEBERG, BUNSENSTRAßE 6B, 30890 BARSINGHAUSEN, SSB+CW |
| DG1BA | EN75C | JO43LB | D. MEYER, SÜDWALDERSTR. 53, 28307 BREMEN, ++421429733, SSB ONLY |
| DG1KBY | DK09A | JO30 | H. SÄNGER, AUF DER BURG 5, 51580 REICHSHOF-WILDBERG, ++22971681, SSB ONLY |
| DG1VL | GL80C | JO61WC | HENRY RICHTER, KURZER WEG 4, 01454 GROSSERKMANNSDORF, |
| DG6LS | FO | JO54 | S. LEHMANN, STRUKBROCK 17, 24161 ALTENHOF-KLAUSDORF, SSB ONLY |
| DG7SF | EI | JN48RR | G. KRAUTER, LISZTSTR. 2, 73207 PLOCHINGEN, SSB ONLY |
| DG9NBT | EJ20E | JN49WS | MARTIN LEICHT, INDUSTRIESTR. 8, 97249 EISINGEN, ++9306906949, SSB ONLY |
| DG9NCX | FJ11J | JN59BT | HUBERT METZ, HEINRICH-SCHATZEL-STR. 17, 97337 DETTELBACH, ++93242894, SSB+CW 1000LPM |
| DH1KBB | CL | JO20XX | JÖRG PRÖMPER, LUISENRING 51A, 52538 GANGELT, ++24541635, SSB+CW 2000LPM |
| DH2FAF | EK75J | JO40 | J. BÜCHNER, VON-STAUFFENBERG-STR.15, 63179 OBERTSHAUSEN, ++610441254, |
| DH2NAF | FI | JN58 | J. FISCHER, P.O.BOX 1101, 85072 EICHSTÄTT, ++8424972, |
| DH3IAJ | EI64F | JN48HD | RALF MITTELSTÄDT, WÜRTTEMBERGER STR. 32, 78628 ROTTWEIL, ++74121982, PR @OE9XBI, SSB ONLY |
| DH6JT | DL | JO31JO | THORSTEN SCHERF, LUCHSSTR. 6, 46535 DINSLAKEN, ++213418220, SSB ONLY EX DD7JE |
| DH8NAA | EJ06A | JN49NX | UDO LANGENOHL, GABELSBERGERSTR. 22A, 63739 ASCHAFFENBURG, ++602124167, FAX ++93114094 SSB+CW |
| DH9KAE | DK01J | JO30BW | D. BRUNKEL, BRUCHHAUSENER STR. 7, 52531 UEBACH-PALENBERG, SSB+CW 800LPM SKEDS DL1EFJ |
| DJ1LP | GO | JO64 | D. BÖLTE, KURT-SCHUMACHER-RING, 18146 ROSTOCK, EX Y22HA |
| DJ1OJ | FI68C | JN58 | HEIJO SCHULTE, EBERWURTZSTR. 85, 80935 MÜNCHEN, ONLY CW 1200LPM |
| DJ2IE | EI04E | JN48HV | DR. R. SCHUBERTH, SCHWARZWALDSTR. 23, 75217 BIRKENFELD, ++7231480345, SSB+CW 1000LPM EX Y23FN |
| DJ2QV | EL02D | JO41EV | MAIK RECKEWEG, DÜPPELSTR. 27, 33330 GÜTERSLOH, SSB+CW 1200LPM EX DG9YEP |
| DJ3MY | FI67D | JN58QD | CHRISTIA DOBMEIER, NELKENSTR. 5, 82110 GERMERING, +898416619, PR @DB0AAB.#BAY.DEU.EU, 4X17ELE, 100W |
| DJ3TF | FJ05G | JN59 | W. WESSELY, P.O.BOX 2211, 92212 AMBERG, ++962112426, CW |
| DJ5AR | EJ02F | JO51 | A. IMSE, HINTER DER KIRCHE 31, 551296 MAINZ, ++613645427, |
| DJ5MS | GI | JN68 | P. PELZ, KOLPINGSTR. 6, 94447 PLATTLING, |
| DJ5RE | FJ60A | JN59WI | THOMAS HÖPPE, BODELSCHWINGSTR. 3, 92224 AMBERG, ++962184535, CW ONLY, MAX. 1000 LPM |
| DJ6LV | DL54D | JO31 | W. SCHUBERT, FRIEDRICH-LAU-STR. 16, 40474 DÜSSELDORF, ++211433329, SSB+CW RANDOM |
| DJ7OF | FL22D | JO51 | K. VOELTZ, MARKTPLATZ 7, 37412 HERZBERG (HARZ), |
| DJ8PB | EO76H | JO44 | H. SACHSE, MITTELWEG 12, 25704 NORDERMELDORF, |
| DJ9EV | EI | JN48 | H. RAU, IM RING 5, 74360 ILSFELD, |
| DJ9YE | EN14A | JO43 | K. HINZ, DORFSTR. 78, 27476 CUXHAVEN, ++472126678, SSB+CW 1200LPM |
| DK0AK | DK | JO30NQ | OP WOLFG , ++228324555, |
| DK1KO | FN12G | JO53 | R. KOCH, NEUER WEG 3, 23867 SÜLFELD, ++4537224, EME STATION |
| DK2LM | EJ21F | JN49 | F. KUBITZSCH, WEIERHOF, 67295 BOLANDEN, |
| DK2PH | EL03E | JO41 | H. WILKE, ARNDTSTR. 47, 33415 VERL, ++52467400, |
| DK2PR | EN76D | JO43 | P. BLOCK, GRASDORF 80, 28870 OTTERSBERG, |
| DK2UO | DK | JO30 | H. WÖLKY, AM ALTEN FLIESS 11, 50129 BERGHEIM, ++223842845, |
| DK3BU | DN36B | JO33 | H. KOWALCZIK, NEUSEEDEICHERWEG 1, 26506 NORDEN, ++49318537, |
| DK4TG | DL63H | JO31 | L. RUHM, GATHERSKAMP 45, 41066 MÖNCHENGLADBACH, |
| DK6AS | FM44D | JO52 | A. SÖCHTING, AUGUST-BIER-WEG 1, 38440 WOLFSBURG, |
| DK8VS | DJ | JN39 | W. HEYDT, TÄLCHENBERG 36, 66131 SAARBRÜCKEN-ENSHEIM, |
| DK9OY | FM41C | JO52 | D. REINECKE, KATENSER HAUPTSTR. 2, 31311 UETZE, |
| DK9TU | EI66H | JN48 | M. STOLL, STAUFENBÜHLSTR. 8, 72461 ALBSTADT, |
| DK9ZY | EK61J | JO40BE | WOLF-DIE POLLERT, STUECKERGRABEN 19, 65329 HOHENSTEIN, SSB+CW 1200LPM |
| DL1DSB | GL79D | JO61 | R. THOMAS, PROHLISER ALLEE 13/08-04, 01239 DRESDEN, ++512741629, EX Y28OL |
| DL1GBF | EI46E | JN48 | P. GRUCHOT, BERGÄCKERWEG 8, 72116 ÖSCHINGEN, ++74731748, CW 1500LPM |
| DL1SDN | EI27E | JN48RR | D. STUMPP, P.O.BOX 1941, 72622 NÜRTINGEN, ++702242741, SSB+CW 1000LPM |
| DL1SUN | FN | JO53 | NORBERT RICHTER, WALSMÜHLERSTR. 23, 19073 WALSMÜHLEN, |
| DL2DXA | GL43B | JO61GL | BERND PONETKA, BOLTENHAGENER STR. 69, 01109 DRESDEN, ++3518806901, CW 1000 LPM |
| DL2NWK | GN28D | JO63SP | W. KUNICKE, SCHWANBECKER STR. 5, 17098 FRIEDLAND, ++3960126725, EME/MS (1000LPM) 4X10ELE DJ9BV,450W |

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| DL2OM | DK38J | JO30 | R. MILKER, FINKENWEG 14, 56587 OBERHONNEFELD, ++26345209, |
| DL2YDS | DM58F | JO32 | STEFAN LAUKEMPER, SCHILLERSTR. 20, 48431 RHEINE, CW ONLY |
| DL3AAL | FM44D | JO52 | B. SEDLACZEK, AM FINKENHAUS 27, 38444 WOLFSBURG, ++536172642, |
| DL3AMA | FL66E | JO51ND | SIGI KLEINE, GROTEWOHL STR. 3/78, 99610 SÖMMERDA, CW 1000LPM - 70CM MS IN 1992 |
| DL3BWW | HM53A | JO72 | J. FIEDLER, P.O.BOX 531, 15206 FRANKFURT (ODER), 003740282, |
| DL3DTS | GL79E | JO61UA | SYLVE RÜDIGER, PLATZ DER BAUARBEITER 9/14-06, 01169 DRESDEN, ++3514912369, |
| DL3IAE | EJ62B | JN49DE | DANIEL KOCH, PROBSTEISTR. 14, 76771 HÖRDT, SSB+CW TX2000/RX1300LPM |
| DL3MBG | GI53D | JN68 | C. ENTSFELLNER, WEICHSELSTR. 5, 84513 TÖGING, ++863190537, |
| DL3SAS | EI27H | JN48OR | H. WECKENMANN, SPAICHINGER STR. 25, 70619 STUTTGART, ++711479496, PHONE AFTER 17UTC |
| DL3YBP | EM74G | JO42 | H. FELDMANN, HEEPER STR. 10, 32107 BAD SALZUFLEN, ++52088754, |
| DL3YEL | EL02D | JO41EV | U. KRATSCH, MANGELSDORFSTR. 10, 33330 GÜTERSLOH, ++524113543, SSB+CW 1200LPM |
| DL4DTU | GL79E | JO61UA | NORBERT RÜDIGER, AMALIE-DIETRICH-PLATZ 9/14-06, 01169 DRESDEN, ++3514112369, |
| DL4MEA | FI64C | JN58 | G. KÖLLNER, RIEDWEG 10, 86853 LANGERRINGEN, ++82328451, |
| DL4NAA | EJ | JN48 | C. PRITZEL, ULMENWEG 49, 63741 ASCHAFFENBURG, ++602188397, |
| DL5BAC | EN55D | JO43 | HJ. MÜLLER, DORFSTR. 14A, 27726 WORPSWEDE 1, ++47927434, |
| DL5BCU | EN65D | JO43 | I. SCHNELL, AM HEIDBERG 8, 28865 LILIENTHAL, ++42983882, SSB+CW |
| DL5DTA | GL79D | JO61 | A. THOMAS, PROHLISER ALLEE 13/08-04, 01239 DRESDEN, ++3512741629, EX Y27BL |
| DL5GAC | EH18D | JN47 | R. TRENTZ, HÖLDERLINSTR.4, 88213 RAVENSBURG-OBERZELL, ++75162262, |
| DL5MCG | FI55A | JN58 | W. RAUH, FRAUENTORSTR. 22, 86152 AUGSBURG, ++821152316, |
| DL5YET | EL02D | JO41EV | MARKUS TOPPMÖLLER, AUF DEM KNÜLL 17, 33334 GÜTERSLOH, ++524125146, 2M+70CM MS EX DH5YAU |
| DL6KAI | DK16C | JO30 | R. SCHMITZ, GÜLDENBERGSTR. 33A, 53840 TROISDORF, |
| DL6KR | DK26J | JO30NQ | MARTIN ( , ++228324555, 10ELE, 130W |
| DL6NAA | FK59C | JO50 | R. VÖLKEL, BRUNNENSTR. 9, 95191 LEUPOLDSGRÜN, ++92921525, |
| DL7AKA | GM37B | JO62QO | H.-J. MÜLLER, FINSTERWALDER STR. 9, 13435 BERLIN, ++304025137, 1000LPM |
| DL7ARM | GM | JO62RJ | CHRISTIA GOY, KRONACHER STR. 121/49, 12309 BERLIN, |
| DL7UTS | GM | JO62TJ | B. GRÖSCHKE, KAROLINENHOFWEG 63, 12527 BERLIN, 003726323676, SSB+CW RX 1500/TX 3000LPM (EX Y24QO) |
| DL7YS | GM | JO62 | P. JOHN, KAISERIN-AUGUSTA-STR. 74, 12103 BERLIN, ++307519512, SSB+CW 1200LPM (PHONE -20UTC) |
| DL7YW | GM48H | JO62RL | J. HAHN, KIENITZER STR. 118, 12049 BERLIN, ++306211702, SSB+CW 2000LPM |
| DL8DAT | DL49H | JO31 | M. KUBAT, ALTER DORTMUNDERWEG 18, 58239 SCHWERTE, ++230413324, |
| DL8EBW | DL66A | JO31 | G. JÜNKERSFELD, GEIBELSTR. 13, 42327 WUPPERTAL, ++202781170, SSB+CW VHF NET |
| DL8FBD | EK75F | JO40 | G. NENNER, NIEDERRÖDERSTR. 32, 63110 RODGAU 2, |
| DL8GP | DJ55C | JN39 | H.W. JOACHIMSEN, RATHAUSSTR. 35, 66292 RIEGELSBERG, |
| DL8HCZ | FN21F | JO53 | J. KRAFT, GRÜTZMÜHLENWEG 23, 22339 HAMBURG, ++405383186, 50/144MHZ |
| DL8LAQ | EN20B | JO43XU | N. GÖTTSCHE, TULPENWEG 3, 24568 KALTENKIRCHEN, ++419188138, SSB+CW 1500LPM |
| DL8NBN | FI16J | JN58 | A. LUTHE, AM WALD 12, 91809 WELLHEIM-KONSTEIN, ++8427306, |
| DL8SCQ | EI08F | JN48RV | E. BRENNER, LINDENSTR. 12, 71573 ALLMERSBACH IM TAL, ++719152227, |
| DL9BDM | DN48A | JO33RL | EILERT MENKE, LEERER LANDSTR. 58, ex dg4be, 26603 AURICH, SSB |
| DL9GS | DL47G | JO31 | A. SCHLENDERMANN, P.O.BOX 102201, 44722 BOCHUM, ++2347003396, |
| DL9MCC | GH | JN67 | H. BÖSSL, GUSTAV-HEINEMANN-RING 102, 81739 MÜNCHEN, ++, |
| DL9YEY | EL03E | JO41GV | THOMAS FAHNENSCHMIDT, EX DH0YAZ, GRUBENWEG 10, 33415 VERL, ++52466621, FAX ++524683413, SSB/CW 1500LPM 6/2/70 |
| EA1CYE | YD42F | IN83 | P. MATORRAS GALAN, LEALTAD 24-1, 39002 SANTANDER, |
| EA1YV | VC67H | IN52OF | AGUSTIN BENDAMIO QUINTAS, P.O.BOX 148, 36200 VIGO, ++86660958, AX SSB+CW 1000LPM,19EL+500W |
| EA2LU | ZC12E | IN92 | J. R. D. ACCUNZI, M. IRIBARREN 2-5D, 31008 PAMPLONA, |
| EA3ADW | BB22G | JN11 | J.M. PORTA, LA MIRANDA 46, la ametillada del valles, BARCELONA, |
| EA3AIR | BB41E | JN11 | J.I. GARCIA, CARRENCA 25, BARCELONA 17, |
| EA3BTZ | AB60B | JN01 | E. FRAILE ALGECIRAS, FREDERIC COROMINAS 92, barna, TORRELLES DE LLOBREGAT BA, |
| EA3DXU | BB41C | JN11 | JOSE M. PRAT PARELLA, AV. ONZE DE SETEMBRE 60, 08130 SANTA PERPETUA DE MOGODA, ++3435740234, SSB+CW 1000LPM |
| EA3WH | AB | JN01 | J.G. BARCELO, VILLAFRANCA DEL PENEDES, p.o.box 23, BARCELONA, |
| EA5EMM | ZZ49H | IM99 | J. LOSA, CASTILLO DE BENISANO 18, 46018 VALENCIA, |
| EA5HM | ZZ | IM99 | P.R. MARTINEZ, C/O CHILE 11-14A, VALENCIA 10, |
| EA6FB | AY | JM08 | J.T. SALA, P.O.BOX 8, suliva, 07830 SAN JOSE, IBIZA, |

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| EA6VQ | BZ26F | JM19MP | GABRIEL SAMPOL, C/SOLDADO ISERN COMAS, 11, 1, 07010 PALMA DE MALLORCA, ++3471756163, |
| EB1EFC | VC67H | IN52OF | ALFONSO REPRESA CARAZO, P.O.BOX 148, 36200 VIGO, |
| EB3CNX | BB51A | JN11 | M.G. GARCIA, P.O.BOX 92016, 08080 BARCELONA, |
| EB5EHX | ZZ69J | IM99 | X.-A. CORTES, P.O.BOX 51, sueca, VALENCIA, |
| EI2CA | WM10A | IO62 | P. MARTIN, CRONROE, ashford, CO WICKLOW, |
| EI4DQ | VL20A | IO51 | T. COCKING, SCARTLEA,, saleen, middleton,, CO CORK, |
| EI5FK | VL08F | IO51 | C. COUGHLAN, 12 FOREST RIDGE CRESCENT, wilton, CORK, |
| ES3GZ | MS04B | KO28 | JAAN NIKKER, MAHLAMÄE 8-28, 203500 RAPLA, EX UR2GZ |
| F1DUZ | ZH | IN97 | PH. LEVRON, 37 RUE DE LA FONDERIE, 49300 CHOLET, |
| F1FLN | ZE07F | IN94QV | MICHEL ROUSSELET, 90 AV DU GL DE GAULLE, 33290 BLANQUEFORT, |
| F5DE | AF | JN05 | B. DELAGE, LOTISSEMENT BEAUREGARD, louvre, 16600 RUELLE, |
| F5HRY | BI22C | JN18EQ | HERVE BIRAUD, EX F1HRY, 37 Rue Pierre Brossolette, 91600 SAVIGNY SUR ORGE, ++169966879, SSB+CW 1500LPM |
| F6BSJ | CG | JN26 | H.M. MAUBLANC, B.P. 9, 71460 ST. GENGOUX LE NATI, |
| F6CJG | BF21J | JN15 | G. GERVAIS, IMPASSE BALUZE, 19100 BRIVE, |
| F6CRP | ZG65G | IN96KE | DENIS AUQUEBON, 30 RUE DES MURIERS, 17140 LAGORD, ++46674052, SSB ONLY |
| F6CTW | BI | | R. CAMUS, 11 AV. ROBERT SCHUMANN, 92360 MEUDON LA FORET, |
| F6DCD | DI30A | JN38 | D. HEITZ, 1 RUE BOHL, 67850 HERRLISHEIM, ++88316555, |
| F6DKQ | DH51A | JN37 | G. FALCOZ, LA CLAIRIERE, moncey, 25870 GENEUILLE, ++81578674, CW |
| F6DRO | | | D. DEHAYS, 13 AV. CAMBOURRAS, 31320 ESCALQUENS, |
| F6DWG | BJ | JN19 | M. FABRIE, 133 RUE DE PARIS, 60000 BEAUVAIS, |
| F6ETI | YH | IN87 | P. MARTIN, GRANDE RUE, 56680 PLOUHINEC, |
| F6EYM | ZJ75A | IN99 | G. VIBET, LES FONTANELLES DU HAUT, 50000 SAINT GEORGES MONTCOCQ, ++33575855, |
| F8OP | CG36F | JN26MM | GEORGES VIALET, "LE COTTAGE", rte de tournus, 71290 CUISERY, |
| F9FT | CJ51F | JN29 | M. TONNA, 134 BLVD. DAUPHINET, 51100 REIMS, |
| F9HS | AD43A | JN03GL | CLAUDE DAGONNEAU, MONCASSIN, 32300 MIRANDE, 13ELE 60W, SSB/CW |
| FC1CCM | ZD59F | IN93 | M. MOLLET, 29 RUE DU STADE, 64121 SERRES CASTET, SSB ONLY |
| FC1FIH | CD13E | JN23 | M. LABORDE, 10 RUE CARAVELLE, 30127 BELLGARDE, SSB |
| FC1LUW | BK26F | JO10 | F. TRICOT, 25/18 RUE HENRI DUNANT, 59000 LILLE, SKEDS VHF NET VIA F1HRY |
| FC1ODA | BD | JN13LE | E. COUSTAL, DOMAINE DE BIDA, route de lunes, 11100 NARBONNE, ONLY SSB, SKEDS VHF NET VIA FD1NIH |
| FD1GHP | ZG65C | IN96LE | J.-P. RIGOULET, 10 RUE DU CLOS L'EGLISE, 17220 SAINTE-SOULLE, ++46376357, CW 1000LPM |
| G0CHE | ZK17F | IO90 | K. PIPER, 6 SUMMER LANE, bognor regis, W. SUSSEX PO21 4NG, |
| G0CHI | ZK17E | IO90 | K.G. HODGES, 15 GRAVITS LANE, bognor regis, SUSSEX PO21 5LT, |
| G0CUZ | YM40F | IO82WM | C. MORRIS, 12 TURNERS HILL RD, lower gornal, dudley,, WEST MIDLANDS DY3 2JU, |
| G0DAZ | YM69B | IO82 | C.J. MISTER, 35 MEADOW RD., claines, WORCESTER WR3 7PP, CW + 432MHZ |
| G0GMB | ZM76J | IO92 | M. BAKER, 25 PENTLANDS, hilltop, stony strattford,, BUCKS MK11 2AF, SSB+CW 1500LPM |
| G0KAS | ZL59B | IO91UI | MIKE STEVENS, 20 MELTON PLACE, epsom, SURREY KT19 9EE, ++372742476, |
| G0LBK | ZN44C | IO93JK | D. LAW, 20 COOK AVENUE,, maltby, rotherham,, S. YORKS S66 8QZ, SSB+CW 2000LPM |
| G0MGA | AK12J | JO00DT | SIMON PRYCE, 62 BEACH ROAD, eastbourne, EAST SUSSEX BN22 7HA, ++32322571, CW TX3000/RX1500LPM |
| G1DXI | ZN38E | IO93 | I. CRIPPS, SYCAMORE HOUSE, STATION RD., hibaldstow, brigg, S. HUMBERSIDE DN20 9EB, ++65254222, |
| G1EZF | ZN13G | IO93 | M. ALLMARK, 11 POTTERNEWTON CRESC, meanwood, LEEDS LS7 2DY, |
| G1SMD | ZK21H | IO90AR | I. GALPIN, 19 PALMER ROAD, oakdale, poole, DORSET BH15 3AR, SSB 50.155 FOR ITALY/50.355 ALL OTHERS |
| G3BW | YO33G | IO84 | W.H. HODGSON, 53 HILL TOP ROAD, whitehaven, CUMBRIA CA28 9ED, |
| G3IMV | ZL07H | IO91 | J. HUNTER, 28 WHITELEY CRES., bletchley, BUCKS MK3 5DG, |
| G3LTF | AL11D | JO01 | P.K. BLAIR, LITTLE POOLES, potter st., harlow, ESSEX CM17 9AD, |
| G3WZT | ZK09J | IO90 | J. MATTHEWS, KINGS DOWN, church rd., partridge green,, HORSHAM, WEST SUSSEX, |
| G4AHN | ZL | IO91OE | RICHARD LAX, 1 GARDENERS HILL RD, farnham, SURREY GU10 4RL, SSB+CW 125LPM ON 50.135MHZ 6 ONLY |
| G4APA | YN | IO83TD | TONY , 13 OFFLEY ROAD, sandbach, CHESHIRE CW11 9AY, ++270761805, SSB+CW 1000LPM |
| G4ASR | YL06H | IO81MX | D. BUTLER, 23 YEW TREE COTTAGE, lower maescoed, HEREFORDSHIRE HR2 0HP, ++87387679, WORK++432372737 SSB+CW 1000LPM 6/4/2MTR |
| G4DCV | AL | JO01 | P. WHATTON, 55 KINGSDOWN ROAD, st. margarets at cliffe, DOVER CT156, |
| G4DGU | XK | IO70 | C.P. BARTRAM, BRADWORTHY, holsworthy, DEVON EX22 7TU, |

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| G4DHF | ZM19F | IO92 | D. JOHNSON, 65 WEST ST., bourne, LINCOLNSHIRE PE10 9PA, |
| G4DOL | YK28D | IO80SP | P. ATKINS, 11 GRAFTON AVENUE,, radipole, weymouth, DORSET DT4 9RZ, SSB 144.205/144.405 RANDOM |
| G4DSC | ZO | IO94 | D. BONIFACE, 11 HOLMEFIELD RD., RIPON HG41 1RZ, ++7652230, |
| G4HGT | YN | IO83 | J. WILKINSON, 10 RINGWAY RD., lee pk., LIVERPOOL L25 3QS, |
| G4IGO | YK06C | IO80NW | K.S. OSBORNE, 7 WINCHESTER COTTAGES, seav.-st-michael, ilminster, SOMERSET TA19 0QJ, ++46041223, |
| G4IJJ | ZL | IO91 | A.J. SPRATT, 14 EDGECOTE CLS., caddington, BEDS. LU1 4HG, |
| G4ISM | AL | JO01 | M. HUGHES, 7 MARTINDOWN RD., whitstable, KENT, |
| G4MUT | ZL46J | IO91 | T. HACKWILL, 59 RIVERMEAD RD, woodley, READING RG5 4DH, ++734693766, |
| G4NDG | YK | IO80 | P. KERSLAKE, SILVERTON, seven crosses, tiverton, DEVON EX16 8JS, |
| G4OAE | ZL | IO91 | D. CRISP, 2 FLAXMAN CLOSE, earleyx, reading, BERGS., ++734874232, |
| G4RGK | ZL37G | IO91ON | D. DIBLEY, BRIGADOON, BOLTER END,, high wycombe,, BUCKINGHAMSHIRE HP14 3LU, ++494881654, |
| G4RNL | YN48J | IO83 | D. HOOPER, P.O.BOX 141, warrington, CHESHIRE, |
| G4SHC | YN40G | IO83VO | R. BENTHAM, 108 STANYCLIFFE LANE, middleton, MANCHESTER M24 2QL, ++616553250, SSB+CW 2000LPM |
| G4VXE | YL | IO81WV | T. KIRBY, 19 SIDNEY STREET, CHELTENHAM GL50 2TD, ++242236723, 50MHZ SSB/144MHZ SSB+CW |
| G4WGS | YN47D | IO83 | M. GAWNE-SHERIDAN, 170 WINCHESTER AV, great sankey, warrington, CHES WA5 1XY, |
| G4XOL | ? | ? | M. OSBORNE, 5 HARVEY AVE, newton-le-willows, MERNYSIDE, |
| G4XUM | YN78J | IO83 | M. PLATT, 15 MNT. CLOSE, nantwich, CHESHIRE CW5 6JJ, ++270626351, |
| G4YTL | ZL15H | IO91JU | D. HILTON-JONES, PARK FARMHOUSE, wendlebury, bicester, OXON OX6 8PW, ++869240268, |
| G6DER | ZN33C | IO93 | K. HEWITT, 6 CHURCH GROVE, monk bretton, barnsley, S. YORKS S71 2EY, |
| G6HCV | YM30F | IO82 | B.G. FLETCHER, 2 SLADE GARDENS, codsall, STAFFS WV8 1BJ, |
| G6HKS | AM22G | JO02 | R. MASON, 19 SALTS RD, west walton, wisbech, CAMBS PE14 7EJ, |
| G6OYL | ZN45G | IO93 | D. LAW, 86 LILLYHALL ROAD, rotherham, maltby, S. YORKS S66 8AT, |
| G6RAF | ZM27E | IO92PP | RAF N LUFFENHAM RC, OAKHAM, LEICS. LE15 8RL, SSB ONLY, SKEDS VIA GW8VHI |
| G6XVV | ZN44C | IO93 | H. BARKER, 24 MICKLEBRING LN., braithwell, S. YORKS S66 7AS, SSB+CW |
| G8JHL | YN39E | IO83 | J. LOVELL, 40 VINE ST., kersal, salford, MANCHESTER M7 0PG, |
| G8ROU | ZM | IO92 | D. HARDY, THORNTREE HOUSE, wensley, matlock, DERBYSHIRE DE4 2LL, |
| G8XVJ | YN48F | IO83 | E. GEDVILAS, P.O.BOX 141, warrington, CHESHIRE TR14 8HG, SSB |
| G8ZDS | XK | IO70 | P. HOCKING, 26 UNION STR., camborne, CORNWALL TR14 8HG, SSB |
| GI0OTC | WP67B | IO65 | A. DOHERTY, 14 RODNEY STR., portrush, ANTRIM BT56 8BL, ++265824735, |
| GI1JUS | XO21G | IO74 | I. BROWN, 13 O'NEILL RD, newton abbey, ANTRIM, ++232868492, |
| GI4OMK | XO31J | IO74 | PH. MURPHY, 19 CAIRNSHILL PK, BELFAST BT8 4RG, ++232702528, |
| GI4OPH | XO33J | IO74 | T. CRAWFORD, 24 MAIN STR., ballywater, CO DOWN BT22 2PG, ++247758425, |
| GI6ATZ | XO31J | IO74 | G. CURRY, 28 BEECHILL PK. SOUTH, BELFAST BT8 4PB, ++232795307, |
| GM0BQM | YP62G | IO85 | M. ROBERTSON, MURRAYFIELD COTTAGE, closeburn, THORNHILL DG3 5AY, |
| GM0HUO | YQ57H | IO86OI | ARLEN PARDOE, 120 NORTH STREET, st. andrews, FIFE KY16 9AF, ++33473460, PHONE+FAX SSB+CW 1000LPM |
| GM0JOL | XS38D | IO78VM | J. LINCOLN, THE MANSE OF FARR, BETTYHILL,, sutherland,, SCOTLAND KW14 7SZ, ++6412208, CW 1000LPM VHF NET |
| GM3POI | YS | IO88MI | C. S. PENNA, NORTHWINDBRAKE, dearness, SOUTH ORKNEY KW17 2QL, |
| GM4YXI | YR60A | IO87 | K. KERR, 3 HILLHEAD OF MOSSTOWN, udny, ellon, ABERDEENSHIRE AB41 0QA, |
| GM8BDX | YP | IO85 | A.J. SCOTT, MANDERSTONE STABLES, duns., BERWS., |
| GM8MJV | YQ77E | IO86PB | TOM MELVIN, 1 RHODES FARMHOUSE, north berwick, EAST LOTHIAN EH39 5NH, ++6204084, SSB ONLY |
| GW4FRX | YM | IO82 | J.H. NELSON, BANK COTTAGE, bausley hill, crew green, SHREWSBURY SY5 9BN, |
| GW4LXO | YL34D | IO81 | J. EASTMENT, 211 PANTBACH RD., rhiwbina, CARDIFF CF4 6AE, |
| GW4TTU | YL | IO81 | K. WEAVER, 24 MONTCLAIRE AVE, blackwood, GWENT NP2 1EE, |
| GW6DDB | XN60F | IO73 | P. LANE, 8 BRYNTEG, llansadwrn, menai bridge, GWYNEDD, ++248810227, |
| GW8JLY | YL | IO81 | L. LEACH, 9 WYON CLOSE, dane scourt, llandaff, CARDIFF CF5 2RN, |
| GW8VHI | YL32F | IO81 | R. WOOLLEY, 7 OLD RD, baglan, p. talbot, W.-GLAM. SA12 8TR, ++639821308, |
| HB9BZA | DG61C | JN36BE | R. CHALMAS, P.O.BOX 222, 1227 CAROUGE/GE, ++22436837, 2M+70CM MS |
| HB9CRQ | EH61B | JN47 | D. GAUTSCHI, P.O.BOX 12, 5737 MENZIKEN, |
| HB9DBM | EH62F | JN47 | M. BRUN, P.O.BOX 56, 6024 HILDISRIEDEN, ++992996, |
| HB9QQ | EH45E | JN47 | P. PASTEUR, SUNNHALDENSTR. 28A, 8600 DÜBENDORF/ZH, |

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| HB9RG | EH | JN47 | H.R. LAUBER, P.O.BOX 114, 8033 ZÜRICH/ZH, |
| HB9SNR | DG26H | JN36MR | G. EGGER, 1743 VILLARSEL-LE-GIBLOUX, SSB ON SIX DURING THE NIGHT ONLY |
| HB9STI | EH43D | JN47GJ | F. SCHERRER, LEONHARDSTR. 12, 8001 ZÜRICH, ++12510832 or, ++12565223 SSB ONLY, QRV ALSO FROM JN46 |
| HB9SUL | EG75D | JN46LA | A. BIANCHI, VIA ARBOSTRA 23A, 6963 PREGASSONA (TI), ++9391516730, SSB ONLY |
| HG1YA | IH63B | JN87 | G. DRASKOVITS, KARPATI U. 43, 9700 SZOMBATHELY, ++9424585, PHONE DURING EVENINGS |
| HG2EAD | JH32B | JN97 | I. KASZAS, CSERESZNYEFA U. 55, 2800 TATABANYA, SSB+CW |
| HG2KNP | JH32B | JN97 | RADIOCLUB TATABANYA, GYORI UT. 13, 2800 TATABANYA, SSB+CW 1500LPM |
| HG2NP | JH32B | JN97 | R. INCZEDI, RETI UT. 30 IV/1, 2800 TATABANYA, SSB+CW SKEDS VIA HA2KML OR HA2KNP |
| HG4KXG | JG05J | JN96 | D. VASMUE RADIO CLUB, P.O.BOX 132, 2401 DUNAUJVAROS, |
| HG4XG | JG05E | JN96 | G. KOVACS, DUNASOR 18, 2428 KISAPOSTAG, |
| HG5CW | JH | JN97 | J. GYÖNGYÖSI, KISCELLI UTCA 16.X/60, 1032 BUDAPEST, |
| HG5PT | JH46G | JN97MK | DR. HOLM TAMAS, HAROS U. 70, 1222 BUDAPEST, |
| HG6KNB | JI69C | JN98 | RADIOCLUB, P.O.BOX 115, 3101 SALGOTARJAN, |
| HG6KVB | KH | KN07 | RADIOCLUB, KOSSUTH L. U. 4., 3300 EGER, |
| HG7AJ | JH58G | JN97 | A. BENDE, KOSSUTHL U. 88/B, 2200 MONOR, SSB+CW 1000LPM |
| HG7KPL | JH57F | JN97 | QSL VIA HG7PL, |
| HG7PL | JH57F | JN97 | DALLOS LASZLO, BERZSENYI UT.12, 2364 OCSA, |
| HG7PR | JH | JN97 | HETVES JOZSEF, P.O.BOX 17, 2441 SZAZHALOMBATTA, |
| HG7WJ | JH26F | JN97MP | SANDOR BERES, P.O.BOX 19, 2011 BUAKALASZ, |
| HG8CE | KG32C | KN06 | KOVACS ISTVAN, PAPTELEK 5., 6621 DEREKEGYHAZ, |
| HG8ET | KG22J | KN06 | G. NAGY, UTTORO SETANY 3, 6600 SZENTES, |
| I0NLK | GB | JN61 | F. SELVA, VIA S. MATTEO 86 PA.D, 00015 MONTEROTOND.RM, |
| I0UZF | GD72B | JN63 | F. ALBERTI, VIA LORENZINI 6, 06100 PERUGIA PG, |
| I1BSN | DE18D | JN34 | FRANCO BESSONE, VIA GUNIA ALTA 14, 10067 VIGONE, ++119801432, SSB ONLY |
| I1DMP | DF79J | JN35UB | PAOLO DEL MEDICO, VIA DANEO 22, 10135 TORINO TO, ++11610153, SSB+CW 1200LPM |
| I1JTQ | DF79J | JN35UB | MARIO TRIOLI, VIA LEGNANO 28, 10128 TORINO TO, ++11547622, SSB+CW 1200LPM |
| I1KTC | EF | JN45 | A. ZAMPOGNA, VIA PRIV. FORMAGGIO 11, 28100 NOVARA NO, |
| I1TXD | EF13C | JN45 | ROSSI FERRUCIO, CHIUSO RIBONI 8, 28010 COLAZZA NO, |
| I2AV | EF | JN45 | A. AVANZINI, P.O.BOX 37, 21047 SARONNO, SSB+CW |
| I2FAK | EF77G | JN45 | F. GIORGI, VIA ZAVATTARELLO 24, 27043 BRONI PV, |
| I2FHW | EE17F | JN44 | FRANCO ROTA, VIA DANTE 5, 20030 SENAGO MI, |
| I3FGX | FF | JN55 | G. BATTISTA FERRERO, VIA PINAZZA 10, 35031 ABANO TERME PD, |
| I3LDP | FF | JN55 | L. BRESCIANI, P.O.BOX 2035, 37121 VERONA 2 VR, |
| I3LGP | GF24G | JN65 | G. ARTICO, VIA VENEZIA 4, 30022 CEGGIA VE, ++42139312, |
| I3YXQ | FF57A | JN55 | GIANCARL MORETTO, VIA SALVAROLO 4, 37040 ARCOLE VR, |
| I4BXN | FE | JN54 | G. SALVIONI, V. ROVERSELLA 1, 40054 BUDRIO, |
| I4MKN | GE | JN64 | M. SOCI, VIA DONIZETTI 31, 47049 VISERBA CW+SSB, |
| I4UJB | GE62G | JN64 | G. SPINELLI, VIA COLOMBARA 449, s. andrea, 47020 CESENA, |
| I4VXH | GE41D | JN64 | L. BABINI, VIA FIUME ABBANDONATO 50, 48100 RAVENNA, |
| I4XCC | GD | JN63 | CLAUDIO MARACCI, VIA SOARDI 7, 47037 RIMINI FO, |
| I5JUX | FD | JN53 | G. BRACCIOTTI, VIA COLOMBO 366, 55043 LIDO DI CAMAIORE, SSB+CW |
| I5MZY | FD17F | JN53 | M. ZANNONI, V. PIENZA 43, 50142 FIRENZE, ++55712035, |
| I6CXD | GD38B | JN63 | P. PALADINI, V. DALMAZIA 13, 60100 ANCONA, |
| I6DQE | GD | JN63 | A.D. D'ELIA, VIA BRUNAMONTI 2, 62019 RECANATI, |
| I6WJB | HC42G | JN72 | P. BATTAGLIA, VIA 319 NO 12, 65100 PESCARA, |
| I6YPK | HC42E | JN72 | B. SANTALUCIA, VIA SALITA MICHETTI 5, 66023 FRANCA VILLA AL MARE, |
| I7RNI | IA23D | JN80 | N. ROGGES, VIA MORELLI 1, 222401 MATERA, |
| I8REK | HA | JN70 | A. MINGO, V. MARIO RUTA 7, 80128 NAPOLI, |
| I8WES | HA02E | JN70 | R. ESPOSITO, VIA DIAZ 7, 80026 CASORIA (NA), ++817587497, |
| IK0FEC | GD65H | JN63 | L. MATARAZZI, P.O.BOX 12, 06023 GUALDO TADINO PG, |
| IK0OKY | GB | JN61 | E. CUTOLO, VIA BATT D'ASSALTO 6, 00148 ROMA, QRV 6M+2M EX IW0BTS |
| IK0SMG | GB13F | JN61FS | PINO NOTO, VIA ALDO BANZI 81, 00128 ROMA RM, EX IW0AKA |
| IK0VKL | | | FLAVIO CREMASCO, EX IW0DRT, Via Antonio Tempesta 28, 00176 ROMA, PR @IW0CFV-8 |
| IK1EFM | EE44C | JN44JK | ANTONIO VENNI, CALAMANDRE 6, 16157 GENOVA, ++106507078, CW 1200LPM |
| IK1LGV | EE44C | JN44JK | G. CALVILLO, VIA DE NICOLAY 16/5, 16155 GENOVA PEGL. GE, ++106983153, SSB/CW 1200LPM PR @I1HUH |
| IK1LUT | DE | JN34TW | MARCELLO CASETTA, VIA FINALE LIGURE 10, 10040 LA LOGGIA TO, ++119658694, SSB ONLY |

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|---|---|---|---|
| IK1MTZ | DF79J | JN35UB | DIEGO SIBONA, STRADA DEL CRESTO 31, 10132 TORINO, ++118998086, SSB ONLY |
| IK1PAG | DF78C | JN35SB | ROBERTO BENEDETTO, VIA NICARAGUA 26, 10095 GRUGLIASCO (TO), SSB+CW 800LPM SKEDS VIA VHF NET ALSO |
| IK1SPR | DE29H | JN34TR | FLAVIO PRECISVALLE, P.O.BOX 1, 12030 RUFFIA CN, ++172373442, SSB ONLY EX IW1BWR |
| IK5EHR | FD | JN53 | R. PANIGADA, VIA DELLE TAGLIATE 2, trav. 1 no. 78, 55100 LUCCA, SSB+CW |
| IK6FHF | GD | JN63 | A. CRISTALLINI, VIA LE BENADUCCI N.74, 62029 TOLENTINO MC, ++733, |
| IN3DOV | FG20E | JN56WS | K. ZWERGER, TIROLENHEIM 5, 39040 ST.STEFANSDORF/LORENZEN, SSB+CW 1000LPM |
| IN3TWX | FG26C | JN56 | W. GICK, HASLACHSTR. 86, 39019 DORF TIROL, CW 1200LPM |
| IT9BLB | GY | JM68 | G. LA PAROLA, VIA VELLO D'ORO 14, 90151 MONDELLO PALERMO, |
| IT9LCY | HX36B | JM77 | G. DISTEFANO, PIAZZA EUROPA 16, 95024 ACIREALE CT, ++957647256, CW |
| IT9VDQ | GY67E | JM68PD | G. GIUNTA, VIA PRESTISIMONE N.24, 90146 PALERMO, ++91527507, |
| IV3GBO | GG | JN66 | G. BORTOLUZ, VIA ROVIGO 30, 33100 UDINE, SSB |
| IV3HWT | GF18C | JN65 | L. COLAUTTI, VIA I MAGGIO 55, 34074 MONFALCONE GO, |
| IW0BFZ | GB13H | JN61 | B. SCHIAVONCINI, V. G. CASELLI 34, 00149 ROMA, |
| IW0DRT | GB03D | JN61GV | FLAVIO CREMASCO, VIA ANTONIO TEMPESTA 28, 00176 ROMA, |
| IW0QLV | GD | JN63EC | M. BELLADONNA, VIA MARTIRI DEI LAGER 21, 06100 PERUGIA PG, |
| IW1AZJ | DF79J | JN35UB | SILVIO RUA, CORSO BENEDETTO CROCE 33, 10135 TORINO TO, ++116191269, OR ++1157777420 OFFICE, SSB+CW 1000LPM |
| IW2BNA | EF36B | JN45 | W. RIVOLTA, VIA NOVELLA 3/C, 20037 PADERNO DUGNANO MI, ++9104712, |
| IW2BZY | EF36J | JN45NN | LORENZO CAPPELLO, VIA MILANO 146, 20024 GARBAGNATE MILANESE MI, ++29953545, SSB ONLY |
| IW4ARD | GE63F | JN64 | G. MATTEINI, V. C. PAVESE 20, 47041 BELLARIA FO, ++54144292, |
| IW5AVM | FC | JN52 | M. PARMEGGIANI, P.O.BOX 6, 58100 GROSSETO GR, ++56427304, |
| IW5BBH | FD | JN53 | A. GHILARDI, VIA DON MINZONI 46/C, 55100 LUCCA LU, SSB |
| IW5BHY | FD | JN53 | A. DELL'IMMAGINE, VIA S. DONATO 730, 55100 LUCCA, SSB+CW |
| IW5BML | FC | JN52 | A. BUZZANI, P.O.BOX 40, 58022 FOLLINICA, SSB+CW |
| IW5BPE | FC | JN52 | M. CIANCHI, VIA DEGLE AIALI 168, 58040 ROSELLE, SSB |
| LA0BY | JD | JP99 | S. HECK, C/O EISCAT, ramfjordmoen, 9027 RAMFJORDBOTN, |
| LA1K | FX42C | JP53EK | AKADEMISK RADIOKLUBB, STUD. POST 250, 7034 TRONDHJEM, ++7899663, SSB+CW ON 6M+2M |
| LA3EU | DW51E | JP32BG | P.M. BLOMVIK, 6037 EIDSNES, ++7191019, SKEDS AT EVENING AND WEEKENDS ONLY |
| LA3UU | FT/FV | | THOR MYERS, HOTVEDTVEIEN VEST 37, 3023 DRAMMEN, |
| LA3WU | CU57C | JP20QH | I. LUNDE, NOTTVEITLIA 18, 5045 SKJOLDTUN, |
| LA6CU | | | P. OLSEN, JONGSTERHAUGSKIFTET, 5092 HYLKJE, |
| LA6HL | CS09J | JO28 | J. BAARDSEN, RISABERGSSTIEN 29, 4056 TANAGER, ++4697200, |
| LA6VBA | ES | JO48 | TARALD MYKLAND, 4909 SONGE, ++4155253, |
| LA7KK | FU62J | JP50 | P. DAHL, DRONNING RAGNHILDSV. 9, 3500 HOENEFOSS, |
| LA8AK | DS80B | JO38 | J.M. NOEDING, VOIELIA 39/B, 4623 KRISTIANSAND, ++38087178, (QRL++38072361) ONLY CW MIN.1500LPM |
| LA9BM | EU32G | JP40 | L. BREIE, FURUTOPPEN 11, 3580 GEILO, ++6785005 qrl, OR ++6785802 AT HOME |
| LA9FY | EU35D | JP40LM | STEINAR VISSEBRATEN, P.O.BOX 36, 3540 NESBYEN, ++6771677, CW 2000LPM SSB ONLY DURING SHOWERS |
| LX1DB | DJ | JN39 | W. BAUER, 12 RUE BALTY WEBER, SANDWEILER, |
| LZ1AG | MC64E | KN22 | A. NESTOROV, RAVNICHTA 29 AP 10, 4002 PLOVDIV, |
| LZ1DP | MC49G | KN22 | H. MINTCHEV, BORUIGRAD 8 AP. 10, 6004 STARA ZAGORA, |
| LZ1DX | MC49G | KN22 | N. ZAPRYANOV, GR. IGNATIEV 38, 6000 STARA ZAGORA, |
| LZ1KDP | LC27J | KN12 | RADIO CLUB, P.O.BOX 812, 1000 SOFIA, |
| LZ1KDZ | NC23A | KN32 | RADIO CLUB, VIA LZ1KU, |
| LZ1KG | NB12F | KN31 | D. JORDANOV, M. GORKY 9, 6500 SVILENGRAD, |
| LZ1KJ | NB12F | KN31 | I. SAMUNDJIEV, VIA LZ1KG, |
| LZ1KRB | NC | KN32 | RADIO CLUB, P.O.BOX 394, 8000 BOURGAS, |
| LZ1KU | NC23A | KN32 | S. VALCHEV, P.O.BOX 10, 8804 SLIVEN, |
| LZ1KWT | MC49G | KN22 | RADIO CLUB, VIA LZ1DP, |
| LZ1QM | LC27D | KN12 | S. MITZKANOFF, P.O.BOX 90, 1000 SOFIA, |
| LZ1ZP | MC64E | KN22 | G. NESTOROV, VIA LZ1AG, |
| LZ1ZX | NC34A | KN32 | D. DIMITROV, P.K.YAVOROV 37, 8680 STRALDJA, |
| LZ2JF | MD79H | KN23 | N. PISSAROFF, G.SEMINAROFF 1, vhod 707, 5000 VELIKO TIRNOVO, |
| LZ2PP | ND33J | KN33 | V. GANEV, P.O.BOX 196, 7200 RAZGRAD, |

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| LZ2US | LD48F | KN13 | M. TZEKOV, VK "LJUTIBRODSKY" BL.25 AP.172, 3005 VRATZA, |
| LZ2UU | LC27J | KN12 | J. JANKOV, VIA LZ1KDP, |
| OE1KRU | II | JN88 | ROBERT KÖHLER, K.EBERSDORFERSTR. 220/5/31, 1110 VIENNA, SSB ONLY |
| OE3JPC | II72C | JN88EB | JOHANNES PICHLER, JOH.-SIEGMAYER-GASSE 5, 2361 LAXENBURG, ++2236718025, SSB+CW 1500LPM PHONE UNTIL 20UTC |
| OE3NFC | II73H | JN88 | N. FUTSCHIK, LEOPOLDSDORFER STR. 26, 2326 MARIA LANZENDORF, SSB ONLY |
| OE3OBC | II52B | JN88 | O. BIBARIC, BISAMBERGSTR. 16, 2100 KORNEUBURG, SSB ONLY |
| OE3OKS | IH21H | JN87 | W. KAGER, GRENZGASSE 25, 2630 TERNITZ, SSB+CW |
| OE3UP | II12G | JN87CT | H.P. USCHAN, ÄUSSERE BAHNZEILE 21, 2700 WIENER NEUSTADT, CW 1500LPM |
| OE3XUA | HH | JN77 | OE3LI C. LIBOWITZKY, JUBILÄUMSSTR. 22, 2301 PROBSTDORF, CW+SSB VHF-NET VIA OE3JPC |
| OE5KE | HI | JN78 | A. KERSCHBAUM, PANHOLZERWEG 3, 4033 LINZ, NOT QRV THIS TIME |
| OE6AHD | HG18B | JN76 | A. PECH, SAUSAL 50, 8444 NEUDORF, ++34563685, |
| OE6IWG | HH47J | JN77 | W. STEINWENDER, HUGO V. HOFMANNSTHALWEG 3/4, 8605 KAPFENBERG, ++3862251485, |
| OE6JGD | HH77B | JN77 | J. GERGETZ, HERZOGENBERGGASSE 6, 8051 GRAZ, ++316663005, |
| OE6XHF | HG18F | JN76 | VUSC, SAUSAL 50, 8444 ST. ANDRAE, ++34563685, SSB+CW |
| OE8HWQ | HG15G | JN76 | H. WURZER, NO. 319, 9431 SANKT STEFAN, ++43524400, NOT QRV THIS TIME |
| OH2BAP | | | J. RINTALA, IIVARINTIE 7, 04600 MANTSALA, CW SSB ONLY DURING SHOWER |
| OH2TI | MU65G | KP20 | PRK, DIPOLI, 02150 ESPO, |
| OH9NLO | MZ23B | KP25 | J. TUOVINEN, KAIVOKATU 5, 94100 KEMI, |
| OH9NYW | MZ23B | KP25GR | ARI KEKKI, KOULUKATU 6, 94100 KEMI, ++69816952, CW 1200LPM |
| OK1DIG | HK | JO70 | D. GLANC, PURKYNOVA 13, 41117 LIBOCHOVICE, |
| OK1FM | GJ27B | JN69QQ | MILAN GÜTTER, KARAFIATOVA 23, 31702 PLZEN / CZECH. REP., ++197247810, PR @OK0PKL.TCH.EU |
| OK1FM | GJ27B | JN69QQ | MILAN GÜTTER, KARAFIATOVE 21, 31702 PLZEN, ++1945975, |
| OK1KHI | HK62D | JO70 | S. HLADKY, GOTTWALDOVA 881, 25263 ROZTOKY U PRAHY, SSB+CW |
| OK1KKH | HJ06C | JN79 | RADIOCLUB, P.O.BOX 44, 28480 KUTNA HORA, |
| OK1KRA | HK62E | JO70 | OL1BRA D KLIMOSZ, PLOJHAROVA 1892, 16200 PRAHA 6-PETRINY, |
| OK1MAC | HJ37H | JN79 | JAN ZIKA, SNET 84, 25768 DOLNI KRALOVICE, |
| OK1MDK | HJ07J | JN79 | J. CERNIK, MARXOVA 101, 28401 KUTNA HORA, |
| OK1MS | HK48A | JO70 | S. BLAZKA, SLEZSKA 402, 50901 NOVA PAKA, |
| OK1OA | HK | JO70 | J. BITTNER, VELTRUSSKA 532, 19000 PRAHA 9, |
| OK1YA | HK73A | JO70 | P. BURIAN, MARTINOVSKA 7, 19000 PRAHA 9-DROSEK, |
| OK2BFH | JJ | JN99 | J. SZAROWSKI, KIROVOVA 6-2305, 73401 KARVINA 1, |
| OK2KZR | IJ32J | JN89 | RADIOCLUB, QSL VIA OK2PEW, |
| OK2PEW | IJ32F | JN89 | R. TOUZIN, S.II 984, 59301 BYSTRICE N.PERN., SSB+CW + 70CM CW |
| OK2PZW | IJ54G | JN89 | Z. STERBACEK, DVORSKA 16, 67801 BLANSKO, ++5062811, OR ++506823 AT QRL |
| OK3CPY | JI59A | JN98UI | ERVIN BENUS, ERENBURGOVA 9, 98401 LUCENEC, |
| OK3KCM | JI | JN98 | QSL-MANA IVAN J., KVETNA 30, 93401 LEVICE, |
| OK3LQ | II46G | JN88 | PALO KOSINOHA, FEBR. VITAZSTVA, 90101 MALACKY OKR. BRATISLAVA, |
| OM3AU | KI27H | KN08 | ANDREJ ORAVEC, SLOBODY 31, 04011 KOSICE, ++95420304, |
| ON1AOI | CL | JO21 | G. DEWAELHENS, DIJKSTRAAT 83, 9330 DENDERMONDE, |
| ON1IM | BL | JO11 | DIRK VERBERCKMOES, HEERNISPLEIN 1, 9040 GENT - SINT-AMANDSBERG, SSB ONLY |
| ON4AMX | CK05E | JO20KV | MARC MICHIELS, KRAASBEEK 37, 3390 TIELT-WINGE, ++16634388, SSB+CW 1000LPM |
| ON4AUD | CK07A | JO20 | A. F. VELDHUIJSEN, ST. JOBSTRAAT 88, 3540 BOLDERBERG-ZOLDER., |
| ON7EH | CK03F | J020FV | MICHEL SPELIER, BLIJDE INKOMSTSTR. 79, 1830 MACHELEN, ++22516865, SSB+CW 1500LPM |
| ON7RB | BL80F | JO11VA | R. BOYDENS, MAGERSTRAAT 119, 9070 DESTELBERGEN, ++91305486, |
| ON7UC | BL66D | JO11ND | JOHAN VA BRABANDT, SNELLEGEMSESTRAAT 89, 8210 ZEDELGEM, ++50201983, AFTER 19UTC, SSB/CW 1200LPM, PR @ON1CED |
| OY9JD | WV07H | IP61 | J. DAM, P.O.BOX 2028, 3800 ARGIR, ++12717, |
| OZ1ASL | FO18C | JO54 | P. ROERHOLT, KASTANIEV. 14, 4990 SAKSKOBING, ++3096143, |
| OZ1BVW | EP48A | JO45 | BIRGER JENSEN, INGRIDSVEJ 57, 6000 KOLDING, ++5527286, |
| OZ1CFO | ER | JO47 | PER GIESSING, KOELTOFTEN 2, lillevorde, 9280 STORVORDE, |
| OZ1CLL | GP23C | JO65 | J. AMUNDSEN, STRANDBOULEVAREN 164 5.TV., 2100 COPENHAGEN 0, ++1185968, |
| OZ1DOQ | GP24F | JO65 | U. LINDHARDT, ÖSTRIGSGADE 49 2.TV., 2300 KOBENHAVN S, |
| OZ1EKI | EP49H | JO45 | T. EKELUND, STENDERUPVEJ. 155, 6092 VARMARK, ++5571349, |
| OZ1ELF | EP49H | JO45 | E. POULSEN, S. STENDERUPVEJ 157, 6092 VARMARK, ++5571296, |
| OZ1FDH | GP22C | JO65 | C. FELBY, MORBARHAVEN 17-17, 2620 ALBERTSLUND, |

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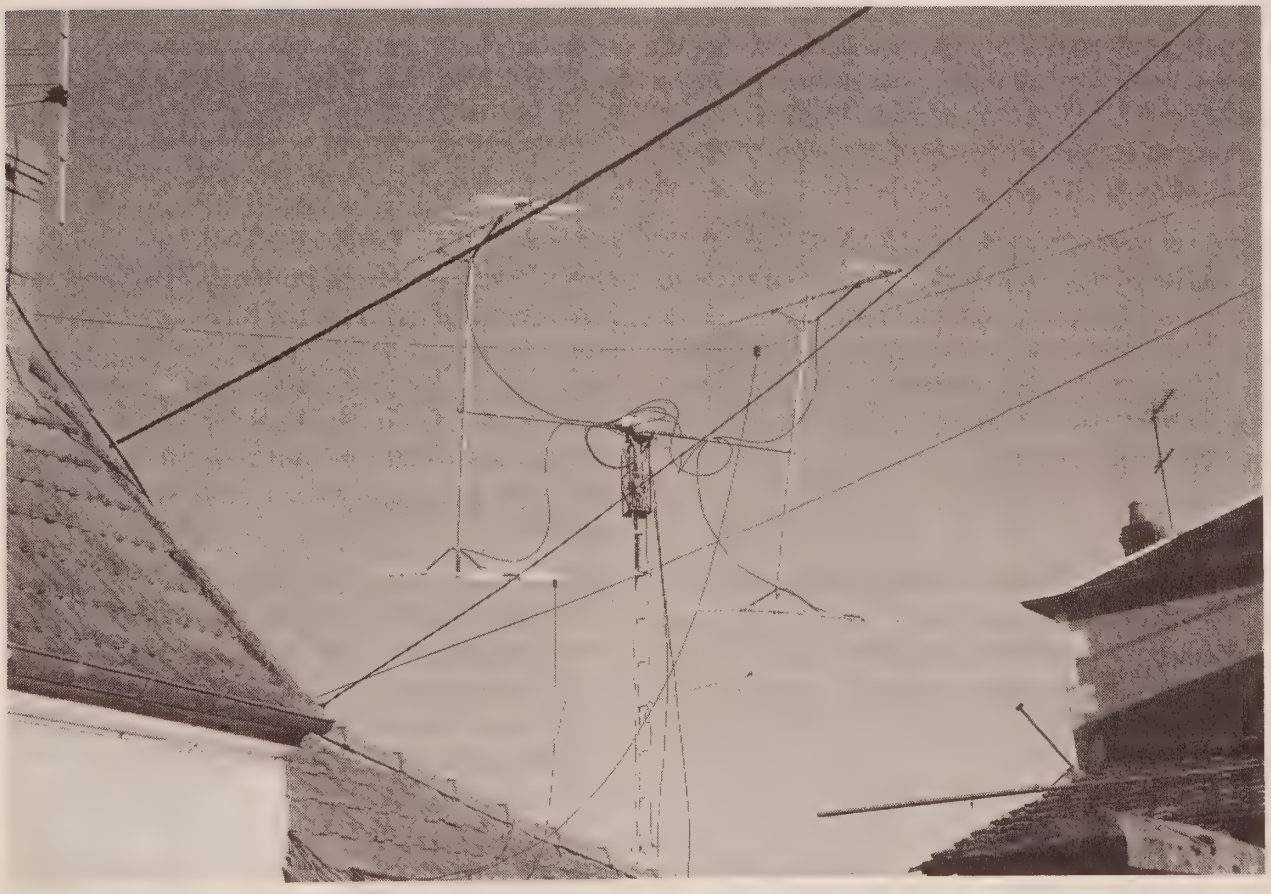
|---|---|---|---|
| OZ1FGP | EQ68A | JO46 | KAI WÜRTZ, SERUP TINGHOJVEJ 8, 8632 LEMMING, |
| OZ1FTU | FP10J | JO55 | S. PEDERSEN, KRUMSTIEN 10A, 2730 HERLEV, |
| OZ1GFX | HP66E | JO75 | TH. NIELSEN, INGEMANNSVEJ 2, 3740 SVANEKE, ++3996374, |
| OZ1HNE | FR53J | JO57 | J. CHRISTIANSEN, ULDALLSVEJ 5, 9300 SAEBY, ++8463357, |
| OZ1IPU | FR53J | JO57GH | J. SÖRENSEN, ROSENVEJ 49, 9300 SAEBY, ++8463311, |
| OZ1IUK | GQ73J | JO66 | BENT NIELSEN, P.O.BOX 348, 3000 HELSINGOR, |
| OZ1IVW | FQ41H | JO56 | MORTEN RASMUSEN, NORREBROGADE 31, 8900 RANDERS, ++6430607, |
| OZ1JVX | EQ12E | JO46DS | A. PEDERSEN, KRIKVEJ 86, 7770 VESTERVIG, ++97941996, |
| OZ1OF | EQ78B | JO46 | O. KRISTENSEN, HOJAGERVEJ 45, 8653 THEM, ++6847885, |
| OZ2ZB | EQ/ER | | K. KRISTENSEN, P.O.BOX 43, 9490 PANDRUP, ++8247900288, |
| OZ3ZW | FO18E | JO54 | T. ANDERSEN, MARGRETHEVAENGET 33, 4930 MARIBO, ++3880027, |
| OZ4VV | EQ | JO46 | F. KRISTENSEN, SKOVBAKKEN 2, 9600 ARS, |
| OZ9FW | GP31B | JO65 | F. NIELSEN, ROSKILDEVEJ 11, tune, 4000 ROSKILDE, ++2136104, |
| PA0FRE | CL | JO21 | D.F. VAN ESVELD, GORDELWEG 44B, 3037 AD ROTTERDAM, |
| PA0HWM | CK10E | JO20 | J. HANSSEN, HAGERWEG 9, 6343 AL KLIMMEN, ++44053017, |
| PA0JMV | CL37E | JO21 | J.H. MUTTER, DE SCHUTTER 10, 5688 VH OIRSCHOT, ++499772587, CW 1200LPM |
| PA0JOZ | CM | JO22 | J.F. VAN DER LIST, VOORSTR. 43, 2201 HL NOORDWIJK, |
| PA0NIE | CL12D | JO21 | K. NIEUWLAND, MOLENDIJK 31, 3284 LE ZUID-BEYERLAND, ++18661632, |
| PA0OOM | DN54G | JO33 | J. DE VRIES, STIFTSWERDERWEG 23, 9991 XH MIDDELSTUM, ++590049393, |
| PA0OOS | DN63B | JO33 | J.C. VAN OOSTEN, LAGE DE AA 32, 8009 GRONINGEN, |
| PA0RDY | CM45E | JO22 | ROBERT DYKSTRA, P.O.BOX 26239, 1002 GE AMSTERDAM, ++206325745, |
| PA0RLS | CM53D | JO22 | R.L. SCHIPPERS, BARTOKSTR. 22, 2162 VE LISSE, ++252115553, |
| PA2CHR | | | C. PLOEGER, MONNIKENSTEEG 32, 6323 AC ARNHEM, |
| PA2JOK | CL15B | JO21 | J. KUIJNTJES, VAN GOUDOEVERSTRAAT 117, 4204 XD GORINCHEM, ++183020795, SSB+CW |
| PA2TAB | DM63B | JO32GF | ARIE BALTES, R. VISSCHERHOF 2, 7471 NH GOOR, ++547071682, SSB/CW 1500LPM, QRV 6, 2 & 4M-X-BAND |
| PA2VST | CM35D | JO22 | P.A. GOUWELEEUW, R.V.BRODERODESTR.32, 1471 CP KWADYK, ++29921298, |
| PA3AEF | | | P. BEYER, MINKELOOS 27, 4221 SR HOOGBLOKLAND, |
| PA3AMF | CM44B | JO22 | K. FEELDERS, DR. BONSTRAAT 80, 1566 KZ ASSENDELFT, ++75281184, |
| PA3BIY | CM72C | JO22 | P.C. HOEFSLOOT, LISDODDE 3, 2631 DJ NOOTDORP, ++3117319601, |
| PA3BZO | CL18E | JO21 | P. VAN DEN BOS, ARENDSTRAAT 10, 5341 RR OSS, ++412023292, CW 1500LPM |
| PA3COB | DM66H | JO32 | H. VAN EWIJK, STERKERSTR. 7, 7586 CX OVERDINKEL, ++542386937, CW 1500LPM |
| PA3CPL | DN63C | JO33 | A. WEDEMEIJER, T. MESDAGSTR. 21A, 9718 KJ GRONINGEN, ++50132926, |
| PA3DMH | CL13B | JO21 | A. VAN HENGEL, SCHOENER 85, 2991 JK BARENDRECHT, |
| PA3DNM | CM73H | JO22 | E. CORNELISSE, MEERKOETEILAND 23, 2252 WS VOORSCHOTEN, ++17179000, |
| PA3DOL | CM15B | JO22 | S. BRATTINGA, LANGEWEG 23, 1774 AJ SLOOTDORP, ++22781236, |
| PA3DWD | CN79F | JO23 | L. HOLLANDER, GELE LIS 98, 8607 HC SNEEK, |
| PA3DYS | CL34C | JO21 | F. HOLL, VALKHOFSTR. 46A, 4834 PG BREDA, |
| PA3DZL | CL34F | JO21HM | JAC DE BRUYN, DORPSSTRAAT 11-13, 4711 ND SINT WILLEBRORD, ++3116537346, ALSO QRV 70CM METEORSCATTER |
| PA3ECU | DM62H | JO32 | R. ATTEMA, GILDENBURG 232, 7423 ZD DEVENTER, ++570053395, |
| PA3EON | CL32E | JO21 | C. GEERSR, NWE. MOLENWEG 25, 4661 SG HALSTEREN, ++16416178, |
| PA3FJY | DM53G | JO32 | D.G.A. VAN DER KNAAP, RAALTERWEG 33, 7451 KZ HOLTEN, ++548363742, PHONE 17-21UTC |
| PE1GBT | DN71A | JO33 | T. ANDRAE, DE SINGEL 61, 9203 XZ DRACHTEN, ++512015842, SSB+CW |
| PE1IWS | CM65D | JO22 | F. DE BLES, SCHEPERSWEG 110, 3621 JM BREUKELEN, ++346264708, |
| PE1KHP | CM70C | JO22XE | ADRIAN KOOPMAN, RUSTENBURGSTR. 130, 7311 JC APELDOORN, ++3155212846, SSB/CW 1000LPM, PR @PI8APD |
| PE1LAU | DN | JO33 | JOHN MEEZEN, NARCIS STRAAT 3, 9675 JV WINSCHOTEN, SSB ONLY |
| RB5EF | | | ARKADY GRABARNIK, P.O.BOX 226, 322640 DNEPRODZERZHINSK-40, |
| RB5GU | | | ALEX SAIKO, P.O.BOX 5, KHERSON 325000, |
| S59AM | GF09J | JN65 | I. NANUT, CANKARJEVA 76, 65000 NOVA GORICA, |
| SM0FSK | IT | JO89 | P. HALL, TIMOTEJV. 15, 19177 SOLLENTUNA, ++87544788, |
| SM0HAX | JT51B | JO99 | P. OHLSSON, FARKOSTVAGEN 6, 18135 LIDINGOE, ++7671921, |
| SM1BSA | JR34A | JO97 | A. GUTEDAL, LYEGATAN 11, 62143 VISBY, QRV MAY-AUGUST |
| SM2BYA | KB12H | KP07 | G. WANNBERG, DUVVÄGEN 22, 98137 KIRUNA, |
| SM2BYC | MZ | KP25 | M. LATHI, KUKKOLA 3451, 95300 HAPARANDA, |
| SM2CEW | LZ22H | KP15CR | PETER SUNDBERG, PL PERSÖN 8811, 95190 LULEÄ, ++92070025, SSB+CW 1200LPM ON 50/144/432MHZ |

| | | | |
|---|---|---|---|
| SM2CKR | KX12G | KP03 | M. FREDERIKSSON, FLOTTAREGATAN 5, 90254 UMEA, |
| SM2EKM | KZ19J | KP05 | JAN ERIK HOLM, P.O.BOX 139, 96122 BODEN, ++92119287, CW 1500LPM |
| SM2ILF | KY | KP04 | S. HEDENSTROM, PL 11537, 93100 SKELLEFTEA, |
| SM3AKW | JW31H | JP92 | K.G. MOHLIN, HÄRNÖN, notsand 1, 87193 HÄRNÖSAND, ++61179020, |
| SM3BEI | IV56D | JP81NG | LENNART NORBERG, SÄTER 4490, 82600 SÖDERHAMN, ++27051474, |
| SM3BIU | HX18J | JP73 | B. ERIKSSON, TULLINGSAS 6174, 83300 STRÖMSUND, |
| SM3COL | IW | JP82 | R. STROEMBERG, FACK 12, 87013 VIKSJOE, |
| SM3GHB | HW39E | JP72 | B. GERHARDSSON, BOBERGSV. 10, 84100 ANGE, ++69012318, |
| SM3IEK | IW46A | JP82NL | K. BERG, ORIENTERARV. 19C, 86025 KOVLAND, ++6091473, SSB+CW 1500LPM |
| SM3LBN | IU34B | JP80 | H. ERIKSSON, SÄLJANSV. 230B, 81152 SANDVIKEN, ++2649209, |
| SM4ANQ | HU66D | JP70 | U. AKESSON, ROTORVÄGEN 41, 77100 LUDVIKA, |
| SM4AXY | HT55C | JO79 | L. WAHLSTROEM, P.O.BOX 39, 71015 VINTROSA, |
| SM4DHN | GU70F | JP60 | L.B. KARLSSON, P.O.BOX 7111, 68300 HAGFORS, |
| SM4GVF | HT | JO79 | KJELL JARL, P.O.BOX 6082, 69200 KUMLA, ++1978193, |
| SM4IVE | HT68D | JO79 | L. PETTERSON, SMEGARDEN TALBY, 71500 ODENSBACKEN, ++1950223, |
| SM4KYN | HT | JO79 | ANDERS QVIST, BERGSJÖTORP, 68100 KRISTINEHAMN, ++55055075, |
| SM4POB | HU | JP70FK | PER J. LISSEL, HAGA 13, 78053 NÄS, ++102075562, FAX AT WORK ++24362390 |
| SM5BEI | JU72C | JP90EB | LENNART NORBERG, KOLARMORA 2679, 74073 HARGSHAMN, HOLIDAY QTH OF SM3BEI |
| SM5BEI | IT50J | JO89 | L. NORBERG, BERGASVÄGEN 11, 19146 SOLLENTUNA, 8354958, |
| SM5CBN | HS56C | JO78 | L. HILLAR, PARKGATAN 49, 59500 MJÖLBY, ++14215874, CW 2000LPM |
| SM5DIC | IT14C | JO89JT | JAGGE RAGERO, LÖT, TÄRNA, 73393 SALA, QRV 50+144+432 |
| SM5EJN | IT77J | JO89 | J. ANCKER, O. STORG. 10, 15010 GNESTA, |
| SM5FRH | | | T. KIHLGREN, STORA HÖGÄSEN, forsabruk, 64190 KATRINEHOLM, |
| SM5MIX | HS | JO78 | U. GUSTAVSSON, DALGARDSGATAN 9C, 59010 BOXHOLM, ++14251747, |
| SM6CMU | FR50B | JO57XK | I. OLSSON, KROKVÄGEN 4, 43400 KUNGSBACKA, ++30027944, SSB+CW 1200LPM ON 6+2M - QRL ++31321151 |
| SM6CMU | GX | | I. OLSSON, KROKVÄGEN 4, 43400 KUNGSBACKA, |
| SM6FBQ | GS | JO68 | C. BERNERUS, HJ. SELANDERSGATAN 1A, 41674 GÖTEBORG, |
| SM6KJX | GR | JO67CK | JAN RYTORP, TORPA 1381, 43033 FJÄERAES, ++30044489, CW RX 1300/TX 1500LPM ON 50+144MHZ |
| SM7AED | GQ56B | JO66 | A. NILSSON, TRUMSLAGAREG. 3, 23100 TRELLEGORG, |
| SM7BAE | GP26D | JO65 | K. RASMUSSON, KAP 325, 24500 STAFFANSTORP, |
| SM7FJE | GQ | JO66 | B. NILSSON, SPANGATAN 7 A/5TR., 21144 MALMÖ, |
| SM7GEP | | | H. ANDERSSON, KONSISTORIEGATAN 19B, 58234 LINKÖPING, |
| SM7GWU | HS75J | JO78 | S. LEDIN, SNICKAREGATAN 13, 57334 TRANAES, ++1401346316109, |
| SM7JUQ | GP37A | JO65 | H. JAKOBSEN, HÄSSLEBERGA 18/23, c/o catronix, 24013 GENARP, |
| SM7KNK | HP32C | JO75 | K. SJÖSTEDT, LUNDEG. 65, 27200 SIMRISHAMN, |
| SM7SCJ | GP47D | JO65 | R. JACOB, BRONNESTAD 9, 23020 KLAGSTORP, ++41026664, SSB+CW 1500LPM ON 6M/2M |
| SP2DXL | | | NOW LA4YGA, CONTACT LA8AK |
| SP2ERZ | JO | JO94 | A. KARWOWSKI (EX SP4ERZ), UL. KOL. ZVEBY 16/1, 80133 GDANSK, |
| SP2JYR | JM | JO92GP | RYSZARD ZUBER, PROCHNOWO, 88200 , ++2599, CW 800LPM |
| SP2LU | JN61F | JO93 | R. KOWASLSKI, CHODKIEWICZA 37 BL.3/43, 85667 BYDGOSZCZ, |
| SP2NJI | JM26F | JO92MP | WIESLAW JANICKI, UL. WIENIECKA 48/126, 87800 WLOCLAWEK, |
| SP3MFI | JL11E | JO91 | ST. KASIK, UL. DLUGOSZA 6/11, 62800 KALISZ, SSB ONLY |
| SP4MPB | KN24G | KO03 | M. KRZEMINSKI, MARCINKOWO 15, 11030 PURDA, |
| SP5CCC | KM66A | KO02NF | TOMASZ CIEPIELOWSKI, P.O.BOX 19, 03996 WARSAW, ++125600, SSB+CW 1200LPM |
| SP5EFO | KM66F | KO02 | LESZEK DUNOWSKI, UL. J.S.BACHA 30 M 908, 02743 WARSZAWA, |
| SP5EFO | KM | KO02 | L. DUNOWSKI, UL. SAKA 4M110, WARSZAWA, |
| SP5HEJ | KM66G | KO02 | M. RESZKA, UL. WILLOWA 9M5, 00790 WARSZAWA, |
| SP6ARE | IL65D | JO81 | W. STEPNIEWSKI, KWISKA 6/6, 54210 WROCLAW, |
| SP6AZT | IL75B | JO81 | Z. MALIK, OLOWIANA 6/4, 53434 WROCLAW, |
| SP6GWB | IK44G | JO80HK | ST. ZIEMCZONEK, UL. OKRZEI 6/4, 57300 KLODZKO, |
| SP6GZZ | IL54H | JO81 | ROMAN FUTOMA, UL. SCINAWSKA 11F/6, 56100 WOLOW, |
| SP8AOV | LL53D | KO11 | Z. OLENDER, P.O.BOX 23, 20015 LUBLIN 1, ++8128413, |
| SP9AMH | JK76H | JO90MC | MARIUSZ MROCZKOWSKI, UL. CYGANERII 17M.19, 43105 TYCHY, |
| SP9EWO | JK74E | JO90IA | JANUSZ DZIADZKO, UL. PAWLIKOWSKIEGO 16A/23, 44240 ZORY, |
| SP9EWU | JK56C | JO90 | WOJTEK KEDZIERSKI, UL. MALACHOWSKIEGO 4 M. 6, 42500 BEDZIN, |
| SV1AB | LY | KM18 | L. VERNARDAKIS, BOTSARI 72, kifissa, 14561 ATHENS, |

| | | | |
|---|---|---|---|
| TK5EP | EB04J | JN41IW | PATRICK EGLOFF, P.O.BOX 223, 20179 AJACCIO, SSB+CW |
| UA1MC | PT | KO59 | W. TSCHERNYSCHEW, UL.KORABLESTROITELEI 38-1-93, 199155 LENINGRAD, |
| UA1ZCL | RC08C | KP78 | A.P. KLIMANSKIJ, POS.TUMANNYJ, kolskij r-n, 184375 MURMANSKAJA, |
| UA4NM | YS29A | LO48 | V. SUVOROV, 8 MARCH 9-25, 610030 KIROV, |
| UC2AAB | NN18C | KO33 | G. GRISHEHUK, AERODROMHAJA 55, 220065 MIHCK 65, |
| UV6AKO | SE07E | KN84 | GENNADY YEMELYANENKO, IVANA GOLUBTSA 103-2, anapa, 353410 USSR, |
| YO2IS | KF17E | KN05 | SUELI IULIUS, STR. IASI 1, 1900 TIMISOARA, |
| YO3JW | NE41C | KN34 | STEFAN FENYÖ, C. P. 19-43, 74400 BUCAREST, |
| YO4AUL | OE64G | KN44 | C. FAURESCU, P.O.BOX 11, 8700 CONSTANTA, |
| YO5AVN | NE31D | KN34 | L. LINGVAY, P.O.BOX 3-30, BUCURESTI 3, |
| YO7CKQ | LF77A | KN15 | NIMARA SORIN, STR. UNIRII BLOC 4/41, 1400 TIRGU-JIU, |
| YO7VS | LE60G | KN14 | D. SCHMIDT, P.O.BOX 63, 1100 CRAIOVA I, |
| YU1ADN | KD35G | KN03 | M. KUZMANOVIC, KRALJEVACKA 24, 36210 VRNJACKA BANJA, |
| YU2IQ | HE77E | JN74 | M. MARKOVIC, SIME MATAVULJA 7/4, 57000 ZADAR, |
| YU7AOP | KF42D | KN05 | RADIOCLUB 'ZRENJANIN', P.O.BOX 127, 23000 ZRENJANIN, |



EME Contest 95 **F6HEO: 2 m**

# FAI News

Editor: Georges Vialet, F8OP

## Call for Infos and Papers

In fact I cannot present news, I just haven't got something.

Some DUBUS readers may be not aware that we have a new column, which is dedicated to scatter phenomena like FAI or Ionoscatter. I try hard, to set this new column after several years of absence in the DUBUS magazine. I think we will publish QSO-reports, but also technical features, propagation theory and reports should be of high interest to our readers. Also phenomena like Ionoscatter need to be investigated. Come on you guys from GM, LA and SM, send some reports about your precious QSOs.!

There is also a request from IARU, Region 1, Propagation Studies, to participate in propagation studies. DUBUS will take part in those programs and your reports besides being printed in DUBUS will have a second use for these studies. This may help to defence our bands by showing that we support public interests.

Conclusion:

- Send your reports via mail, email, packet
- Send your photographs
- Send articles, if you wish.
- Be active: For active amateurs by active amateurs, that's the motto DUBUS stands for.

/3

Georges Vialet, F8OP

Ich bin leider nicht in der Lage, Neuigkeiten zu präsentieren.

Vielleicht ist noch nicht durchgedrungen, daß ich vor einiger Zeit die Sparte FAI übernommen habe. Nach einigen Jahren, in denen die Sparte nicht erschien, möchte ich wieder über FAI und Ionoscatter-Phänomene berichten. Dazu gehören QSO-Berichte, technische Berichte, Ausbreitungstheorie usw.

Es gibt auch eine Anfrage der Koordinatoren für 'Propagation Studies' der IARU, Region 1, an die DUBUS mit der Bitte um Zusammenarbeit. DUBUS wird diese Arbeit der Region 1 unterstützen. Damit erfüllen Eure Berichte einen doppleten Sinn: sie werden in der DUBUS gedruckt und dienen als Datenmaterial für Ausbreitungsstudien. Durch diese Funktion, so denke ich, beweisen wir ein Stück weit, daß wir tatsächlich ein experimenteller Funkbetrieb sind. Das unterscheidet uns wohltuend von anderen, die ein begehrliches Auge auf unsere UKW-Bänder geworfen haben.

Kurzum, Reden ist Silber, Machen ist Gold:

- Sendet bitte Eure Reports via Post, packet oder email
- Sendet Fotos
- Sendet Artikel, Berichte, was Ihr wollt.
- Seid aktiv, wie das DUBUS-Motto nahelegt

73

Georges Vialet, F8OP

# Aurora News

Editor: Edmund Ramm, DK3UZ

**DK2PH (EL03d)** wkd via Aurora on 144MHz in CW:

**950326**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1548 | YL3AG | MQ01g | 55a | 55a | 15 | 1632 | SM5BSZ | IT44e | 59a | 59a | 10 |
| 1600 | SM7RME | HR25d | 55a | 55a | 15 | 1637 | SM6EAN | FR30j | 58a | 57a | 20 |
| 1610 | LA2AB | FT03f | 53a | 53a | 0 | vln dk fr info, Hans | | | | | |

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**DK8LV (EO48d)** wkd via Aurora on 144MHz in CW:

**950102**

| | | | | | |
|---|---|---|---|---|---|
| 1846 | SM5BSZ | IT44e | 58a | 42a | 15 |

**950129**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1703 | SM4HFI | HU39h | 57a | 53a | 5 | 1804 | SM5MIX | HS54d | 58a | 56a | 355 |
| 1705 | SM3JGG | HV50e | 53a | 56a | 10 | 1812 | GM4ILS | YR24e | 56a | 55a | 355 |
| 1709 | SM3AKW | JW31h | 56a | 53a | 10 | 1823 | LA4YGA | ES61g | 55a | 55a | 355 |
| 1721 | OH2KKP | MU56g | 56a | 55a | 25 | 1832 | LA3EDA | FU52f | 59a | 58a | 0 |
| 1731 | ES2RW | MT56a | 54a | 59a | 25 | 1837 | OH2BTB | MU65b | 56a | 55a | 0 |
| 1749 | OY9JD | WW77f | 51a | 33a | 0 | 1907 | OH3MF | MU23h | 55a | 53a | 0 |
| 1757 | SM5BSZ | IT44e | 58a | 57a | 0 | 1918 | GM4YXI | YR60a | 55a | 52a | 0 |

**950130**

| | | | | | |
|---|---|---|---|---|---|
| 1746 | SM5BSZ | IT44e | 56a | 54a | 10 |
| 1847 | SM3AKW | JW31h | 56a | 54a | 10 |

**950203**

| | | | | | |
|---|---|---|---|---|---|
| 1841 | LA3DV | ET20e | 57a | 55a | 10 |
| 1858 | LA4OGA | FT05b | 55a | 55a | 10 |

**950211**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1757 | SM5BSZ | IT44e | 59a | 58a | 40 | 1807 | GM4YXI | YR60a | 57a | 55a | 40 |
| | | | | | | 1822 | SM4OJ | HU60e | 55a | 55a | 30 |

**950212**

| | | | | | |
|---|---|---|---|---|---|
| 1843 | SM4HFI | HU39h | 55a | 53a | 0 |

**950226**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1828 | OH3MF | MU23h | 55a | 53a | 30 | 1836 | OH2KKP | MU56g | 31a | 55a | 30 |
| 1835 | OH2BNH | MU55d | 55a | 59a | 30 | 1848 | SM4HFI | HU39h | 59a | 54a | 25 |
| | | | | | | 1919 | SM5BSZ | IT44e | 58a | 57a | 35 |

**950326**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1332 | LA5LBA | FT78h | 55a | 57a | 30 | 1410 | YL3AG | MQ01g | 56a | 55a | 40 |
| 1334 | SM4SEF | GT56a | 57a | 57a | 30 | 1413 | LA2PHA | DS74j | 57a | 55a | 30 |
| 1336 | SM7RME | HR25d | 57a | 57a | 30 | 1449 | OH2BNH | MU55d | 57a | 57a | 20 |
| 1338 | LA3DV | ET20e | 56a | 55a | 10 | 1552 | GM0NAI | ZP28h | 57a | 59a | 20 |
| 1340 | SM4CFL | GT38g | 55a | 59a | 10 | 1828 | LA9OGA | FU14f | 59a | 59a | 5 |
| 1348 | DL9GJW | FO79b | 59a | 59a | 25 | 1831 | OH1LSQ | LU52j | 55a | 55a | 5 |
| | | | | | | 1852 | LA8WF | FT03d | 55a | 53a | 5 |

**DK8LV (EO48d)** contd.:

**950326**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 1350 | SM5BSZ | IT44e | 59a | 59a | 10 | 1858 | ES2RJ | MT34d | 31a | 55a | 355 |
| 1358 | SM1CJV | JR62b | 57a | 58a | 30 | 1902 | SM0ELV | IT49a | 55a | 55a | 355 |
| 1400 | SM5KQS | IS26j | 55a | 57a | 30 | vln dk fr info, Stephan | | | | | |

**DK8ZJ (DK04a)** wkd via Aurora on 144 Mhz in CW:

**950326**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 1413 | LA4YGA | ES61g | 55a | 55a | 25 | 1524 | LA2AB | FT03f | 53a | 53a | 25 |
| 1424 | SM6KWJ | GR22d | 53a | 52a | 25 | 1530 | GM4YXI | YR60a | 58a | 57a | 25 |
| 1441 | LA2PHA | DS74j | 55a | 55a | 25 | 1556 | YL3AG | MQ01g | 55a | 55a | 25 |
| 1449 | SM5BSZ | IT44e | 59a | 58a | 25 | 1605 | SM7RME | HR25d | 53a | 53a | 25 |
| 1458 | GM0NAI | XP18h | 53a | 55a | 25 | 1610 | SM6EAN | FR30j | 55a | 55a | 25 |
| 1511 | SM6OPX | FS58f | 53a | 53a | 25 | 1630 | OZ6ABA | FR42e | *55a* | *55a* | 25 |
| | | | | | | 1734 | SK6HD | GS68d | 55a | 57a | 25 |

**950407**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 1538 | G0OFE | ZK11g | 55a | 57a | 40 | 1637 | SM6CRX | GR26h | 56a | 57a | 45 |
| 1552 | UA1WAM | PQ53b | 55a | 57a | 45 | 1640 | DL9QB | EO43h | 57a | 59a | 45 |
| 1559 | SP2OFW | JN71h | 55a | 59a | 45 | 1642 | SM5RN | IS32g | 53a | 55a | 45 |
| 1606 | G3TGL | ZM41f | 57a | 56a | 40 | 1646 | DL7AST | GM47c | 55a | 56a | 45 |
| 1611 | GM0CLN | YP06h | 55a | 53a | 40 | 1647 | G3EDD | YM62j | 55a | 58a | 40 |
| 1620 | G4RRA | ZL67h | 57a | 59a | 45 | 1650 | G4CI | ZL59b | 53a | 56a | 35 |
| 1624 | SM7ALC | GP48h | 55a | 57a | 45 | 1653 | G0MGA | AK12j | 52a | 55a | 20 |
| | | | | | | vln dk fr info, Martin | | | | | |

**DL1EAP (DL44j)** wkd via Aurora on 144MHz in CW:

**950326**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 1417 | LA2PHA | DS74j | 54a | 53a | 5 | 1605 | SM6EAN | FR30j | 52a | 54a | 30 |
| 1426 | LA4YGA | ES61g | 52a | 52a | 10 | 1615 | OZ1CLL | GP23c | 53a | 55a | 20 |
| 1430 | SM6KWJ | GR22d | 52a | 52a | 30 | 1621 | GM4YXI | YR60a | 59a | 57a | 30 |
| 1509 | SM5BSZ | IT44e | 55a | 57a | 350 | 1635 | OZ6ABA | FR42e | *57a* | *55a* | 5 |
| 1519 | LA2AB | FT03f | 51a | 51a | 350 | 1710 | LA8SJ | FT24g | 53a | 55a | 5 |
| 1554 | YL3AG | MQ01g | 53a | 55a | 20 | 1732 | SK6HD | GS68d | 53a | 54a | 15 |
| | | | | | | vln dk fr info, Wolfgang | | | | | |

**DL1EJA (DL12e)** wkd via Aurora on 144MHz in CW:

**950407**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 1624 | LA8SJ | FT24g | 55a | 59a | | 1748 | GW4FRX | YM26h | 55a | 55a |
| 1630 | F6CRP | ZG65g | 55a | 55a | | 1751 | G4AJC | ZL49d | 55a | 55a |
| 1631 | DF1CF | FH23j | 59a | 59a | | 1757 | DK9ZY | EK61j | 52a | 52a |
| 1638 | G4RGA | ZL | 55a | 55a | | 1808 | DB8KJ | DK32f | *52a* | *53a* |
| 1645 | LA2PHA | DS74j | 55a | 55a | | 1824 | PA2DWH | CM72c | 55a | 54a |
| 1650 | DL3KFM | GO | 55a | 55a | | 1826 | GM3JFG | XR30b | 55a | 53a |
| 1700 | HB9QQ | EH45e | 55a | 57a | | 1839 | OZ6OL | GP42e | 55a | 55a |
| 1709 | HB9DFG | DH38d | 55a | 54a | | 1851 | PA3EPD | CL02c | 51a | 55a |
| 1726 | DL2OM | DK38j | 57a | 55a | | 1854 | G0CUZ | YM40f | 55a | 51a |
| 1731 | DL1VAA | GL80j | 55a | 55a | | 1902 | DL7VBW | GM37c | 55a | 55a |
| 1736 | DF2UQ | EJ74j | 55a | 55a | | vln dk fr info, Oliver | | | | |

**DL1KDA (DK23g)** wkd via Aurora on 144MHz in CW:

**950407**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1503 | OZ8ZS | FP18g | 57a | 59a | 1600 | SP2OFW | JN71h | 55a | 59a |
| 1519 | DL2IAN | EJ71a | 52a | 55a | 1608 | GW4FRX | YM26h | 59a | 59a |
| 1524 | OE2UKL | GH05b | 53a | 55a | 1616 | F8EAM | BJ36f | 53a | 59a |
| 1529 | HA0HO | KH18b | 53a | 59a | 1630 | S53VV | GF39e | 53a | 55a |
| 1541 | DL3IAS | EJ42d | 41a | 55a | 1635 | DL2FCN | EJ14b | 55a | 55a |
| 1543 | DL4FCH | EK64e | 53a | 55a | 1651 | DF0BT | GM37c | 59a | 59a |
| 1547 | PA3EKK | DM74f | 55a | 55a | 1654 | G0CUZ | YM40e | 52a | 57a |

**950408**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1550 | GM0CLN | YP06h | 52a | 51a | 1554 | SM6KWJ | GR22d | 52a | 53a |

vln dk fr info, Alex

---

**DL2IAN (EJ71a)** wkd via Aurora on 144MHz in CW:

**950407**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1505 | OZ8ZS | FP18g | 55a | 52a | 1524 | F6DWG | BJ41j | 53a | 55a |
| 1506 | DL9GJW | FO80a | 55a | 55a | 1528 | DL5MAM | FI79j | 52a | 52a |
| 1507 | PA3EKK | DM74f | 52a | 54a | 1548 | DL0FTG | FN21f | 52a | 55a |
| 1511 | DF8LC | FN03a | 53a | 53a 50 | 1652 | DL2LAR | EO46h | 57a | 55a |
| 1517 | DL8EBW | DL66a | 57a | 57a 30 | 1656 | G0CUZ | YM40e | 53a | 53a |
| 1518 | DL1KDA | DK23g | 55a | 52a | | | | | |

vln dk fr info, Thomas

---

**DL8EBW (DL66a)** wkd via Aurora on 144MHz in CW:

**950313**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1807 | SM5BSZ | IT44e | 52a | hrd 10 | 1535 | GM4YXI | YR60a | 57a | hrd 350 |

**950407**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1452 | DL9GJW | FO80a | 57a | 56a 40 | 1554 | DL7VBW | GM37c | 59a | 59a 45 |
| 1455 | DF8LC | FN03b | 59a | 59a 40 | 1609 | DF5DE | EK02h | 57a | 57a 50 |
| 1500 | DJ2XS | FN41g | 55a | 53a 40 | 1612 | G4BAK | ZL42a | 44a | 54a 50 |
| 1502 | GM0CLN | YP06h | *59a* | *55a* 25 | 1619 | F2TH | CI76h | 55a | 52a 50 |
| 1514 | DL6CTG | FM50d | 57a | 55a 50 | 1622 | DF1CF | FH23f | 55a | 55a 70 |
| 1516 | DL2IAN | EJ71a | 57a | 57a 50 | 1637 | HB9QQ | EH45e | 57a | 59a 75 |
| 1519 | DL4FCS | EK64e | 55a | 55a 50 | 1642 | G4RGK | ZL37g | 57a | 59a 40 |
| 1521 | DL5MAM | FI79j | 57a | 59a 70 | 1645 | F6APE | ZH57b | 57a | 56a 40 |
| 1523 | HB9LEH | EH43c | 55a | 55a 70 | 1651 | RA3LE | QO21h | 59a | hrd 40 |
| 1528 | HG0HO | KH18j | 55a | hrd 75 | 1702 | HB9DFG | DH38d | 57a | 55a 70 |
| 1537 | DF7KF | DK13b | 59a | 59a 75 | 1735 | DL1VAA | GL74c | 55a | 53a 75 |
| 1538 | DL0FTG | FN21f | 59a | 59a 75 | 1806 | DL2FDX | EK55d | 52a | 52a 50 |
| 1547 | F6DWG | BJ42a | 55a | 55a 50 | 1817 | PA2DWH | CM63d | 55a | 55a 50 |

Fb Aurora evening, but very poor activty! Our situation was not so very good. Stations in the East were better located.

vln dk fr info, Guido

---

**ES1CW (MT44g)** wkd via Aurora on 144MHz in CW:

**950326**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1340 | YL3AG | MQ01g | 59a | 57a | 1502 | SM4HFI | HU39h | 59a | 54a |
| 1343 | LA8SJ | FT24g | 59a | 56a | 1510 | SM3COL | IW30d | 59a | 57a |

**950326**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1455 | SM5BSZ | IT44e | 55a | 54a 350 | | | | | |
| 1549 | PA3FJY | DM52c | 57a | 55a 50 | | | | | |

**ES1CW (MT44g)** contd.:

**950326**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1348 | OH1LTU | KV79g | 59a | 55a | 1605 | GM4YXI | YR60a | 57a | 51a |
| 1417 | SM7TKR | HR46f | 59a | 53a | 1615 | OZ5UKF | HP66f | 57a | 55a |
| 1431 | SP2OFW | JN71h | 57a | 55a | 1617 | UA3MBJ | SS78d | 59a | 53a |
| 1434 | SM5DCX | IT57h | 59a | 59a | 1642 | DK1KO | FN12g | 57a | 53a |
| 1439 | RN1NY | ????? | 57a | 57a | 1654 | DL1JF | FO62h | 55a | 53a |
| 1448 | OZ6OL | GP42e | 59a | 56a | tks fr info Arvo | | | | |

**OE3JPC (II72c)** wkd via Aurora on 144MHz in CW:

**950407**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 1554 | G0PES | YN15d | 53a | 52a | 330 | 1630 | G4RKV | AL57h | 55a | 55a | 325 |
| 1559 | EI4DQ | VL20a | 54a | 57a | 320 | 1633 | G4CI | ZL59b | 52a | 55a | 315 |
| 1602 | G3NAQ | ZL44h | 53a | 52a | 320 | 1644 | DL7VBW | GM37c | 55a | 55a | 330 |
| 1604 | DL9YEK | EM55c | 53a | 55a | 330 | 1647 | G4BRK | ZL22e | 53a | 54a | 330 |
| 1606 | DK4QT | EL04h | 52a | 53a | 330 | 1649 | G3EDD | AM62j | 56a | 56a | 330 |
| 1609 | G3KEQ | AL51j | 56a | 56a | 330 | 1651 | DL9GJW | FO80a | 57a | 57a | 330 |
| 1612 | G4IGO | YK06j | 52a | 53a | 330 | 1652 | SP2RS | JO43c | 57a | 57a | 330 |
| 1615 | DL3BWW | HM53a | 58a | 59a | 330 | 1656 | DK5HE | FN34j | 59a | 59a | 330 |
| 1624 | GW3KJW | XM17j | 54a | 55a | 330 | 1659 | G4AEP | YL46e | 54a | 54a | 320 |
| 1626 | DJ6GK | EK14c | 52a | 55a | 320 | 1702 | G3GNR | XK20j | 52a | 53a | 320 |
| 1626 | HA0HO | KH18b | 55a | 59a | 315 | 432MHz: nil hrd. | | | | | |
| | | | | | | vln dk fr info, Johannes | | | | | |

**OH2BNH (MU55d)** worked via Aurora on 144MHz in CW:

**950326**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1414 | DL1KUS | GN08b | 55a | 55a | 1633 | DL1SUN | FN37j | 57a | 57a |
| 1422 | UA3PB | SN09h | 55a | 57a | 1635 | DL3SWS | FN58d | 57a | 55a |
| 1436 | SM6KWJ | GR22d | 59a | 55a | 1636 | DL1JF | FO62h | 57a | 57a |
| 1439 | DJ3LE | EO18d | 59a | 59a | 1637 | DK9HN | EN34b | 57a | 55a |
| 1442 | SM1CJV | JR62b | 59a | 59a | 1640 | DL9QB | EO49a | 54a | 57a |
| 1444 | DF8LC | FN03b | 57a | 57a | 1643 | SM3VAC | IX79d | 59a | 59a |
| 1446 | RN1NY | PV31e | 59a | 59a | 1706 | SM7UYJ | GP27g | 59a | 55a |
| 1451 | DK8LV | EO48d | 57a | 57a | 1802 | DL7VBW | GM37c | 59a | 58a |
| 1453 | LA7AE | FU76e | 55a | 55a | 1807 | DK9OY | FM42g | 57a | 53a |
| 1455 | SM5TJH | IS32g | 57a | 59a | 1810 | OZ5UKF | HP66f | 56a | 55a |
| 1537 | DL0FTG | FN21f | 57a | 59a | 1820 | DL8CMM | FM40a | 58a | 56a |
| 1549 | GM4YXI | YR60a | 59a | 56a | 1924 | SM3UVH | IU26j | 55a | 55a |
| 1620 | SP2OFW | JN71h | 59a | 59a | 1942 | SM0EPO | IT50b | 59a | 57a |
| 1632 | DL9GJW | FO80a | 59a | 59a | 1952 | DL9GKA | GN08b | 59a | 57a |
| | | | | | kiitos info Pasi | | | | |

**PE1MVJ (CL03f)** wkd via Aurora on 144MHz in SSB:

**950407**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1510 | GM0CLN | YP06h | 57a | 55a | 1531 | OZ6ABA | FR42e | 56a | 55a |
| 1517 | EI3GE | WN70d | 56a | 55a | 1557 | G8XVJ | YN48f | 56a | 55a |
| | | | | | bedankt voor info Hans | | | | |

**UT3BW (MJ79e)** hrd via Aurora on 144MHz:

**940407**

| | | | | | |
|---|---|---|---|---|---|
| 1655 | RA3LE | QO21h 58a hrd | 1658 | UA1WAM | PQ53b 57a hrd |

спасибо за инфо Игорь

**70cm 70cm 70cm 70cm 70cm 70cm 70cm 70cm 70cm 70cm 70cm**

**DL4MDQ (FI28f)** wkd via Aurora on 432MHz in CW:

**950408**

| | | | | | |
|---|---|---|---|---|---|
| 1600 | OZ1FDH | GP22c 41a hrd 30 | 1645 | DL8BDU | EN71f 42a hrd 30 |
| 1635 | SM7BYU | GP15d 52a 52a 30 | vln dk fr info, Max | | |

Please submit your Aurora reports preferably in machine readable form. You may do so using the following **magnetic media:**

5 1/4" or 3 1/2" 720K TOS or MS-DOS (please no HD coating)

Further you can report to me by **E-Mail:** dk3uz@techno.isys.net

or via **Packet Radio:** DK3UZ @ DB0HHT.#HH.GER.EU

vy 73, Eddi

# News & Comments

Editor: Klaus Tiedemann, DL4EBY

## The 17th Nordic VHF-UHF-SHF Meeting June 9-11. 1995, Sandefjord Norway

We hereby have the pleasure to invite you to the annual VHF-UHF-SHF meeting 1995. The meeting will be held at the YMCA scout camp near Sandefjord.

**Activities :** There will be lectures on several technical topics. This time we will take special care of new hams interested in VHF and above DX work. General discussions on VHF and above related matters, with information from the Vienna meeting. One of the discussion topics will be future band planning. Fleamarket, Amsat station and radio stations from 50MHz.
**Family activities :** This year we hope you will bring your family, because this time there will be a lot of those not interested in ham radio. We can mention canoe, kayak, sand beach, football field and montain climbing.

**Acconmmodation and prices :** Indoor accommodation possibilities in 4, 6 or 8 bed rooms, as well as camping. Remember to bring your own sleeping bag or similar. No kitchen for making yout own meals avaible.

**Prices :**
All included from Friday to Sunday (bed) NOK 650.- All included from Friday to Sunday (camp.) NOK 550.-
Above prices include : free coffee/tea, all meals including ham dinner and accommodation.
bed (one night) NOK 125.-
Meals (one day) NOK 175.-
Ham diner NOK 150.-
Camping (one night) NOK 50.-

After the Saturday evening ham dinner, there will be dance to a live orcestra.

Please note *alchohol* restrictions as this is a YMCA camp.

**Location :** The camp is located on a little island just outside the city of Sandefjord, and is called "Knattholmen leirsted". If you arrive by car , follow the road no. 303 from Sandefjord and drive in direction to Tonsberg. Some km north of Sandefjord follow the road to Nattholmen.

Check in and guide frequency 145.450 MHz or R6.

**Reservation :** Transportation from the Stromstad-Sandefjord and Fredikshaven-Larwik ferries will be arranged if needed.Please give us following information when making your reservation :
- name and callsign
- name of family members
- day of arrival
- transportation from a ferry needed
- bed or camping
- meals and ham dinner

Send your reservations to :
Helge Karlsen, LA1BR, N-2355 Gaupen
Packet LA1BR@LA5G.RAU.E.NOR.EU,
Phone/Fax, +47 623 54282 (0900-1700).

mny tnx fer info

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# DUBUS Toplist

Editor: Norbert Goettsche, DL8LAQ

## DUBUS 50 MHz Top List

| NR | CALL | WW | EU | WK | TR | AU | MS | ES | F2 |
|---|---|---|---|---|---|---|---|---|---|
| 1 | PA0RDY | JO22 | CM | 597 | 725 | 1617 | 1597 | **** | 16320 |
| 2 | G4IGO | IO80 | YK | 583 | 577 | 1308 | 2528 | 6970 | 16188 |
| 3 | ON4KST | JO20 | CK | 581 | 652 | 1415 | 1509 | 7920 | 16498 |
| 4 | ON4ANT | JO20 | CK | 551 | 710 | 1757 | 1695 | 7243 | 16547 |
| 5 | ON4GG | JO20 | CK | 534 | 710 | 1757 | 1695 | 7243 | 16547 |
| 6 | DL7QY | JN59 | FJ | 532 | 741 | 1665 | 2186 | 6900 | 16353 |
| 7 | GW4LXO | IO81 | YL | 500 | 300 | 650 | 1200 | 7500 | 10000 |
| 8 | G6HKM | JO01 | AL | 481 | 347 | 1883 | 780 | 5674 | 16112 |
| 9 | SM6CMU | JO57 | FR | 424 | 762 | 1452 | 1642 | 5922 | 0 |
| 10 | F1GTU | JN05 | AF | 418 | 699 | 815 | 1421 | 3268 | 16400 |
| 11 | DL8HCZ | JO53 | FN | 412 | 365 | 1250 | 1356 | 3350 | 0 |
| 12 | I4XCC | JN63 | GD | 394 | 492 | 0 | 1427 | 3349 | 18627 |
| 13 | PA2TAB | JO32 | DM | 387 | 610 | 1370 | 1809 | 5797 | 15339 |
| 14 | PA3FYM | JO22 | CM | 375 | 1238 | 2019 | 0 | **** | 16373 |
| 15 | G8VR | JO01 | AL | 365 | 760 | 2154 | 1290 | 8470 | 16416 |
| 16 | F8OP | JN26 | CG | 348 | 631 | 1023 | 1369 | 5508 | 13547 |
| 17 | OK1MAC | JN79 | HJ | 336 | 0 | 0 | 0 | 0 | 0 |
| 18 | DL9GU | JN49 | EJ | 327 | 721 | 450 | 0 | 8500 | 15625 |
| 19 | OK1IBL | JO60 | GK | 317 | 530 | 1320 | 1717 | 6941 | 11816 |
| 20 | DL7ARM | JO62 | GM | 315 | 909 | 1189 | 1245 | 8324 | 15817 |
| 21 | OK1DDO | JO60 | GK | 284 | 620 | 1423 | 1340 | 6100 | 13300 |
| 22 | SP6GZZ | JO81 | IL | 268 | 515 | 0 | 1826 | 7619 | 0 |
| 23 | OK1FAV | JO60 | GK | 246 | 0 | 579 | 1093 | 6250 | 10366 |
| 24 | DL3YEE | JO42 | EM | 244 | 540 | 1056 | 1300 | 2700 | 13053 |
| 25 | OZ7IS | JO65 | GP | 228 | 410 | 1294 | 850 | 3100 | 0 |
| 26 | DL8LAQ | JO43 | EN | 228 | 0 | 0 | 0 | 0 | 0 |
| 27 | G6LEU | IO70 | XK | 214 | 700 | 750 | 0 | 0 | 0 |
| 28 | ES1CW | KO29 | MT | 201 | 1052 | 1726 | 2841 | 3311 | 4343 |
| 29 | OK1VBN | JN78 | HI | 200 | 455 | 0 | 0 | 4010 | 0 |
| 30 | DL5BBL | JO42 | EM | 199 | 414 | 1008 | 0 | 3165 | 5863 |
| 31 | OK1FFD | JO60 | GK | 195 | 550 | 1247 | 0 | 6060 | 13300 |
| 32 | DL7YS | JO62 | GM | 195 | 342 | 461 | 969 | 3547 | 8767 |
| 33 | DL8EBW | JO31 | DL | 184 | 247 | 1050 | 1150 | 5800 | 13300 |
| 34 | 9A2EY | JN85 | IF | 182 | 438 | 0 | 0 | 0 | 0 |
| 35 | SP6GWB | JO80 | IK | 163 | 696 | 629 | 1880 | 4250 | 0 |
| 36 | HB9AOF | JN36 | DG | 156 | 100 | 0 | 0 | 5400 | 10663 |
| 37 | DL5GAC | JN47 | EH | 147 | 129 | 690 | 0 | 5100 | 11900 |
| 38 | SP5EFO | KO02 | KM | 147 | 0 | 0 | 0 | 0 | 0 |
| 39 | DL3AMA | JO51 | FL | 143 | 372 | 0 | 1600 | 4001 | 0 |
| 40 | OK1VQ | 142 | 245 | 539 | 0 | 2002 | 2755 | | |
| 41 | DL5IO | JN49 | EJ | 119 | 113 | 340 | 900 | 3100 | 12995 |
| 42 | I2FUM/2 | JN45 | EF | 107 | 137 | 0 | 0 | 2023 | 0 |
| 43 | IN3TWX | JN56 | FG | 95 | 396 | 0 | 0 | 1890 | 8100 |
| 44 | DL6BF | JO32 | DM | 94 | 0 | 0 | 0 | 0 | 0 |
| 45 | SM0FZH | JO99 | JT | 66 | 502 | 1016 | 0 | 1984 | 0 |
| 46 | DJ6MB | JO30 | DK | 64 | 0 | 661 | 0 | 5968 | 0 |
| 47 | EH1DVY/P | IN82 | YC | 49 | 467 | 0 | 0 | 2409 | 0 |
| 48 | DJ8ES | JO43 | EN | 45 | 1105 | 0 | 0 | 2100 | 0 |

## DUBUS 144 MHz Top List

| NR | CALL | WW | EU | WK | TR | AU | MS | ES |
|---|---|---|---|---|---|---|---|---|
| 1 | DK1KO | JO53 | FN | 630 | 2124 | 2057 | 2194 | 3285 |
| 2 | DL3BWW | JO72 | HM | 623 | 2243 | 2034 | 2295 | 2782 |
| 3 | DL8HCZ | JO53 | FN | 554 | 1615 | 1976 | 2096 | 3527 |
| 4 | PA0RDY | JO22 | CM | 547 | 1582 | 1979 | 2272 | 2819 |
| 5 | SM6CMU | JO57 | FR | 534 | 1760 | 1928 | 2280 | 2540 |
| 6 | SM6AFH | JO66 | GQ | 531 | 1730 | 1554 | 2010 | 2330 |
| 7 | PA3BIY | JO22 | CM | 530 | 1550 | 2026 | 2205 | 3143 |
| 8 | DK6AS | JO52 | FM | 516 | 1460 | 1885 | 2510 | 2260 |
| 9 | OH5LK | KP30 | NU | 515 | 1962 | 2041 | 2235 | 2891 |
| 10 | DF8LC | JO53 | FN | 514 | 2105 | 2045 | 2202 | 3291 |
| 11 | DK9OY | JO52 | FM | 511 | 1651 | 1947 | 2208 | 2434 |
| 12 | SP6GZZ | JO81 | IL | 506 | 1670 | 1794 | 2017 | 2717 |
| 13 | SP9EWU | JO90 | JK | 489 | 1710 | 1927 | 2154 | 2531 |
| 14 | OE3JPC | JN88 | II | 472 | 1584 | 1821 | 2128 | 2769 |
| 15 | I2FAK | JN45 | EF | 469 | 1750 | 1508 | 2405 | 2995 |
| 16 | OZ1DOQ | JO65 | GP | 466 | 1885 | 1940 | 1981 | 2888 |
| 17 | DL8EBW | JO31 | DL | 458 | 1454 | 1918 | 2029 | 2214 |
| 18 | DL8LAQ | JO43 | EN | 442 | 1376 | 1806 | 1934 | 3302 |
| 19 | DL2NWK | JO63 | GN | 441 | 1819 | 1956 | 1991 | 2251 |
| 20 | DL7UTS | JO62 | GM | 430 | 1516 | 1379 | 2057 | 2312 |
| 21 | UV1AS | KN59 | PT | 427 | 1709 | 1905 | 2271 | 2547 |
| 22 | DL5BCU | JO43 | EN | 421 | 1479 | 1928 | 2010 | 2538 |
| 23 | RA3YCR | KO73 | RN | 420 | 1835 | 1964 | 2255 | 2429 |
| 24 | I4XCC | JN63 | GD | 416 | 1177 | 1803 | 2275 | 3257 |
| 25 | OM3AU | KN08 | KI | 401 | 2128 | 1756 | 2065 | 2513 |
| 26 | PA3FOC | JO21 | CL | 400 | 1373 | 2010 | 2142 | 2179 |
| 27 | DL5DTA | JO61 | GL | 399 | 1344 | 1578 | 1907 | 2057 |
| 28 | OK1FM | JN69 | GJ | 397 | 1843 | 1438 | 2200 | 2031 |
| 29 | DL7AKA | JO62 | GM | 396 | 1747 | 1916 | 2065 | 3620 |
| 30 | F8OP | JN26 | CG | 395 | 1228 | 1196 | 2028 | 2720 |
| 31 | SP5EFO | KO02 | KM | 392 | 1702 | 1982 | 2010 | 2626 |
| 32 | OK1MAC | JN79 | HJ | 392 | 1536 | 1681 | 2005 | 2511 |
| 33 | OK1JKT/P | JO60 | GK | 385 | 1701 | 1764 | 2121 | 2269 |
| 34 | I3LGP | JN65 | GF | 380 | 1335 | 1387 | 2020 | 3174 |
| 35 | UA3MBJ | KO88 | SS | 373 | 1560 | 2006 | 2573 | 2392 |
| 36 | ON4ANT | JO20 | CJ | 371 | 1420 | 1965 | 2124 | 2725 |
| 37 | HB9CRQ | JN47 | EH | 369 | 1404 | 1288 | 2060 | 2959 |
| 38 | ON4GG | JO20 | CK | 365 | 1420 | 1965 | 2124 | 2124 |
| 39 | F5FHI | IN97 | ZH | 355 | 1739 | 2051 | 2183 | 2735 |
| 40 | DL3AMA | JO51 | FL | 350 | 1785 | 1803 | 1925 | 2075 |
| 41 | OE3OKS | JN87 | IH | 349 | 1441 | 1273 | 1867 | 2788 |
| 42 | UT1PA | KO21 | ML | 340 | 1901 | 1934 | 1806 | 2425 |
| 43 | DL1SUN | JO53 | FN | 336 | 1824 | 1724 | 1845 | 2333 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 44 | DL7YS | JO62 | GM | 334 | 1512 | 1528 | 1826 | 2136 |
| 45 | PA3FJY | JO32 | DM | 333 | 1536 | 1337 | 1981 | 1940 |
| 46 | G3LQR | JO02 | AM | 329 | 1776 | 2031 | 0 | 2406 |
| 47 | S50C | JN76 | HG | 329 | 1463 | 1530 | 2233 | 3356 |
| 48 | I4YNO | JN54 | FE | 327 | 1145 | 1374 | 1960 | 2243 |
| 49 | DJ1LP | JO64 | GO | 324 | 1347 | 1071 | 2058 | 2301 |
| 50 | EA1DVY | IN81 | YB | 323 | 1946 | 0 | 0 | 2064 |
| 51 | F6DKW | JN18 | BI | 322 | 1519 | 1602 | 2051 | 2755 |
| 52 | OK1DKS | JO70 | HK | 321 | 1230 | 1308 | 0 | 3530 |
| 53 | DK0OG | JN68 | GI | 311 | 1708 | 1722 | 2125 | 3320 |
| 54 | PA0RLS | JO22 | CM | 311 | 1350 | 1890 | 1890 | 2832 |
| 55 | DK1KR | JO53 | FN | 310 | 1481 | 2103 | 0 | 2026 |
| 56 | SP3MFI | JO91 | JL | 307 | 1697 | 1632 | 1802 | 2617 |
| 57 | UA3TCF | LO26 | WQ | 306 | 1131 | 1996 | 2498 | 2332 |
| 58 | IW1AZJ | JN35 | DF | 306 | 1105 | 1188 | 1904 | 2780 |
| 59 | DL5GAC | JN47 | EH | 305 | 1264 | 1876 | 2135 | 3079 |
| 60 | SP9HWY | JO90 | JK | 303 | 1698 | 1928 | 0 | 2532 |
| 61 | DL6BF | JO32 | DM | 303 | 1542 | 1932 | 1452 | 2332 |
| 62 | DL8OBU | JO42 | EM | 297 | 1483 | 1866 | 1733 | 2159 |
| 63 | RW3RW | LO02 | UM | 297 | 1298 | 2098 | 1740 | 2834 |
| 64 | SM5BSZ | JO89 | IT | 293 | 1764 | 1824 | 1938 | 0 |
| 65 | SP6GWB | JO80 | IK | 291 | 1780 | 1581 | 1875 | 2437 |
| 66 | OK1DFC | JO60 | GK | 291 | 1775 | 2099 | 2024 | 2016 |
| 67 | UA3DHC | KO96 | TQ | 289 | 1766 | 1891 | 2180 | 2429 |
| 68 | F1FIH | JN23 | CD | 289 | 1305 | 999 | 1723 | 2934 |
| 69 | IN3TWX | JN56 | FG | 283 | 1100 | 0 | 1609 | 1750 |
| 70 | F1EAN | JN06 | AG | 282 | 1650 | 1420 | 0 | 2479 |
| 71 | LA8AK | JO38 | DS | 280 | 1496 | 1804 | 1804 | 2413 |
| 72 | OK1FFD | JO60 | GK | 277 | 1388 | 1720 | 1937 | 2154 |
| 73 | DB6BX | JO32 | DM | 275 | 1534 | 1541 | 1921 | 2059 |
| 74 | G4IGO | IO80 | YK | 274 | 2761 | 1917 | 1903 | 2833 |
| 75 | SP2JXN | JO94 | JO | 274 | 1650 | 1690 | 0 | 2634 |
| 76 | UA4API | LO20 | WK | 271 | 1127 | 1820 | 0 | 0 |
| 77 | PA0WWM | JO22 | CM | 268 | 1303 | 1839 | 1997 | 2212 |
| 78 | OK1IBL | JO60 | GK | 266 | 1438 | 1462 | 2003 | 3398 |
| 79 | UA4NM | LO48 | YS | 265 | 1215 | 1850 | 2510 | 2290 |
| 80 | GW4LXO | IO81 | YL | 261 | 2750 | 1550 | 2000 | 2200 |
| 81 | OZ1IPU | JO57 | FR | 261 | 1387 | 1187 | 1566 | 2452 |
| 82 | UZ2FWA | KO04 | KO | 261 | 912 | 1759 | 2125 | 2010 |
| 83 | OK1HAG | JN79 | HJ | 260 | 1441 | 1749 | 1909 | 3463 |
| 84 | DK2BJ | JO30 | DK | 258 | 1476 | 1924 | 0 | 2205 |
| 85 | F5HRY | JN18 | BI | 257 | 1239 | 1695 | 2038 | 2758 |
| 86 | DD0BI | JO33 | DN | 252 | 1565 | 1018 | 1102 | 2362 |
| 87 | F6CKZ | JN09 | AJ | 252 | 1552 | 1330 | 1725 | 3407 |
| 88 | DJ6LV | JO31 | DL | 250 | 1268 | 1880 | 1822 | 3130 |
| 89 | G6HKM | JO01 | AL | 248 | 1304 | 1555 | 1660 | 2269 |
| 90 | ON4KST | JO20 | CK | 245 | 1435 | 1612 | 0 | 2383 |
| 91 | PE1KHP | JO22 | CM | 241 | 1685 | 1214 | 1321 | 2010 |
| 92 | DG1BA | JO43 | EN | 239 | 1674 | 1280 | 1588 | 2239 |
| 93 | F5JRX | JN25 | CF | 237 | 1598 | 1187 | 1616 | 2301 |
| 94 | UV6AKO | KN84 | SE | 237 | 1155 | 960 | 2017 | 2567 |
| 95 | UT7GA | KN66 | QG | 231 | 1877 | 1446 | 2131 | 2617 |
| 96 | DK1VI | JN49 | EJ | 227 | 1148 | 1107 | 1604 | 3131 |
| 97 | F1GTU | JN05 | AF | 225 | 1650 | 967 | 1934 | 2400 |
| 98 | DH3YAK | JO31 | DL | 225 | 1187 | 1162 | 0 | 2650 |
| 99 | RA6HHT | LN05 | UF | 224 | 1255 | 1827 | 1827 | 2782 |
| 100 | OE6IWG | JN77 | HH | 224 | 1221 | 1110 | 2220 | 1954 |
| 101 | DH6JT | JO31 | DL | 221 | 1199 | 1051 | 1870 | 1634 |
| 102 | OK1VBN | JN78 | HI | 217 | 1578 | 1682 | 1915 | 2209 |
| 103 | DD0VF | JO61 | GL | 217 | 1279 | 1275 | 1800 | 2001 |
| 104 | UA4UK | LO14 | VO | 215 | 0 | 0 | 0 | 0 |
| 105 | DC6DY | JO31 | DL | 212 | 1416 | 1045 | 1914 | 2292 |
| 106 | DL5BBL | JO42 | EM | 212 | 1416 | 1290 | 0 | 2028 |
| 107 | F5PAU | IN88 | YI | 209 | 1630 | 0 | 0 | 2425 |
| 108 | UR7GN | KN66 | QG | 205 | 1830 | 0 | 2010 | 1940 |
| 109 | UY5HF | KN66 | QG | 201 | 1750 | 0 | 1820 | 2032 |
| 110 | HB9DFG | JN37 | DH | 201 | 1367 | 1299 | 1784 | 2302 |
| 111 | G3XDY | JO02 | AM | 200 | 1355 | 2049 | 0 | 2124 |
| 112 | DL9BDM | JO33 | DN | 197 | 1538 | 1248 | 1659 | 2321 |
| 113 | DF9QX | JO42 | EM | 197 | 1446 | 1070 | 1455 | 3320 |
| 114 | OK1SC | JO70 | HK | 195 | 1490 | 1673 | 0 | 1729 |
| 115 | DK2DB | JN48 | EI | 192 | 1239 | 1136 | 0 | 3106 |
| 116 | PA2TAB | JO32 | DM | 191 | 1302 | 1094 | 1949 | 2183 |
| 117 | DL8AAV | JO52 | FM | 185 | 1236 | 1127 | 0 | 2144 |
| 118 | S59AM | JN65 | GF | 184 | 1377 | 0 | 1945 | 1788 |
| 119 | UZ3TXB | LO16 | VQ | 183 | 1163 | 1941 | 2145 | 0 |
| 120 | OE5VRL/5 | JN78 | HI | 182 | 1665 | 1573 | 1990 | 2124 |
| 121 | OK1DDO | JO60 | GK | 180 | 1329 | 1500 | 1720 | 2418 |
| 122 | HB9RUZ | JN47 | EH | 180 | 1060 | 970 | 0 | 3014 |
| 123 | HB9MIO/P | JN37 | DH | 179 | 1316 | 975 | 0 | 2183 |
| 124 | DK9RL | JN69 | GJ | 177 | 1311 | 1513 | 1286 | 3316 |
| 125 | RA3TES | LO15 | VP | 177 | 1074 | 1935 | 2144 | 2247 |
| 126 | G6LEU | IO70 | XK | 173 | 2620 | 750 | 0 | 2403 |
| 127 | DL3YEE | JO42 | EM | 172 | 1574 | 1450 | 1480 | 2106 |
| 128 | HB9AOF | JN36 | DG | 171 | 1201 | 670 | 1675 | 2166 |
| 129 | HA1SO | JN87 | IH | 170 | 1787 | 1797 | 0 | 2143 |
| 130 | UA6LGH | KN97 | TH | 169 | 1918 | 758 | 1918 | 2167 |
| 131 | DG0CR/P | JO50 | FK | 169 | 1279 | 1530 | 0 | 2010 |
| 132 | UA3RBO | LO03 | UN | 169 | 952 | 1909 | 2137 | 2378 |
| 133 | DG1VL | JO61 | GL | 168 | 1209 | 1223 | 1800 | 2038 |
| 134 | UA3MAS | KO97 | TR | 167 | 1667 | 1752 | 1884 | 1996 |
| 135 | IK1LGV | JN44 | EE | 163 | 1466 | 0 | 1613 | 1890 |
| 136 | SM0FZH | JO99 | JT | 158 | 1226 | 1442 | 1200 | 2377 |
| 137 | SP9FG | JN99 | JJ | 157 | 1647 | 1283 | 0 | 1698 |
| 138 | OK1CA | JO70 | HK | 156 | 1540 | 1065 | 950 | 2096 |
| 139 | UA3MHJ | KO87 | SR | 156 | 539 | 1943 | 2405 | 1948 |
| 140 | OK1IAS | JO60 | GK | 153 | 1195 | 1004 | 0 | 2138 |
| 141 | DG9NBT | JN49 | EJ | 151 | 1363 | 0 | 1648 | 1832 |
| 142 | UT5JCW | KN64 | QE | 150 | 0 | 0 | 0 | 0 |
| 143 | DL0UL/P | JN48 | EI | 149 | 1026 | 0 | 0 | 2019 |
| 144 | OZ7IS | JO65 | GP | 148 | 1128 | 1294 | 1901 | 1845 |
| 145 | PA3FXW | JO22 | CM | 144 | 1267 | 1247 | 1436 | 1965 |
| 146 | DL1BKK | JO43 | EN | 143 | 1512 | 877 | 0 | 1965 |
| 147 | DJ6XV | JO31 | DL | 143 | 1337 | 961 | 0 | 2007 |
| 148 | DG5NEX | JN49 | EJ | 133 | 1234 | 0 | 1333 | 1941 |
| 149 | UW3ZD | KO81 | SK | 126 | 1713 | 2126 | 1755 | 2363 |
| 150 | RV3ZR | KO80 | RK | 124 | 1045 | 1956 | 1785 | 2077 |
| 151 | DL3NAW | JN59 | FJ | 120 | 1019 | 0 | 1961 | 1237 |
| 152 | UA4CFV | LO32 | XM | 118 | 1311 | 1824 | 0 | 2415 |
| 153 | UA4AQL | LO20 | WK | 116 | 1123 | 2055 | 2158 | 1962 |

## DUBUS 432 MHz Top List

| NR | CALL | WW | EU | WK | TR | AU | MS | ES |
|---|---|---|---|---|---|---|---|---|
| 1 | DJ9BV | JO43 | EN | 219 | 2154 | 1863 | 1440 | 0 |
| 2 | PA0RDY | JO22 | CM | 202 | 1979 | 1807 | 1376 | 0 |
| 3 | G3LQR | JO02 | AM | 198 | 2031 | 1613 | 0 | 0 |
| 4 | DL3BWW | JO72 | HM | 193 | 1547 | 1494 | 0 | 0 |
| 5 | PA0EZ | JO22 | CM | 189 | 1787 | 1445 | 0 | 0 |
| 6 | PA0WWM | JO22 | CM | 187 | 1547 | 1836 | 0 | 0 |
| 7 | OZ7IS | JO65 | GP | 185 | 1499 | 1048 | 1294 | 0 |
| 8 | F5FHI | IN97 | ZH | 184 | 1892 | 1280 | 1530 | 0 |
| 9 | UA6LGH | KN97 | TH | 182 | 2216 | 0 | 0 | 0 |
| 10 | DL8QS | JO43 | EN | 180 | 1513 | 1513 | 0 | 0 |
| 11 | DL7QY | JN59 | FJ | 173 | 1640 | 1848 | 1292 | 0 |
| 12 | DJ6MB | JO30 | DK | 171 | 1278 | 1733 | 0 | 0 |
| 13 | PE0AGO | JO32 | DM | 163 | 1702 | 0 | 0 | 0 |
| 14 | DK6AS | JO52 | FM | 161 | 1569 | 775 | 0 | 0 |
| 15 | F6DKW | JN18 | BI | 161 | 1519 | 0 | 0 | 0 |
| 16 | DK1KO | JO53 | FN | 160 | 1643 | 694 | 0 | 0 |
| 17 | DB6BX | JO32 | DM | 158 | 1550 | 662 | 0 | 0 |
| 18 | F1EAN | JN06 | AG | 154 | 1493 | 0 | 0 | 0 |
| 19 | G3XDY | JO02 | AM | 154 | 1350 | 1619 | 0 | 0 |
| 20 | DB6NT/A | JO50 | FK | 153 | 1823 | 0 | 0 | 0 |
| 21 | PA3DIJ | JO33 | DN | 150 | 2116 | 1010 | 0 | 0 |
| 22 | DK1KR | JO53 | FN | 150 | 1400 | 1827 | 0 | 0 |
| 23 | OZ2OE | JO45 | EP | 148 | 2216 | 1020 | 0 | 0 |
| 24 | RA3YCR | KO73 | RN | 147 | 1671 | 1788 | 0 | 0 |
| 25 | OK1CA | JO70 | HK | 146 | 1670 | 0 | 0 | 0 |
| 26 | SM6ESG | JO67 | GR | 144 | 1427 | 0 | 0 | 0 |
| 27 | SM0FZH | JO99 | JT | 143 | 1900 | 1218 | 0 | 0 |
| 28 | DF8LC | JO53 | FN | 143 | 1615 | 1361 | 0 | 0 |
| 29 | DH3NAN | JO50 | FK | 143 | 1437 | 1008 | 0 | 0 |
| 30 | SP6GWB | JO80 | IK | 141 | 1780 | 759 | 0 | 0 |
| 31 | SP6MLK | JO80 | IK | 141 | 1780 | 0 | 0 | 0 |
| 32 | DL1SUN | JO53 | FN | 136 | 1157 | 1071 | 0 | 0 |
| 33 | DL3YEE | JO42 | EM | 134 | 1574 | 1728 | 0 | 0 |
| 34 | SM7ECM | JO65 | GP | 132 | 1348 | 1073 | 0 | 0 |
| 35 | OK1KIR/P | JO60 | GK | 130 | 1773 | 0 | 0 | 0 |
| 36 | SP9FG | JN99 | JJ | 130 | 1660 | 0 | 0 | 0 |
| 37 | OH5LK | KP30 | NU | 128 | 1386 | 1196 | 0 | 0 |
| 38 | DL1BKK | JO43 | EN | 123 | 1193 | 565 | 0 | 0 |
| 39 | SP9EWU | JO90 | JK | 121 | 1544 | 1558 | 1664 | 0 |
| 40 | G6HKM | JO01 | AL | 120 | 1289 | 281 | 0 | 0 |
| 41 | G6RAF | IO92 | ZM | 119 | 1730 | 0 | 0 | 0 |
| 42 | OE5VRL/5 | JN78 | HI | 119 | 1522 | 1031 | 0 | 0 |
| 43 | LA8AK | JO38 | DS | 119 | 1373 | 981 | 0 | 0 |
| 44 | DL4VCG | JN39 | DJ | 115 | 1335 | 0 | 0 | 0 |
| 45 | OZ1IPU | JO57 | FR | 113 | 1387 | 0 | 0 | 0 |
| 46 | DL6BCT | JO43 | EN | 112 | 1152 | 0 | 0 | 0 |
| 47 | F5PAU | IN88 | YI | 111 | 1630 | 0 | 0 | 0 |
| 48 | DJ6XV | JO31 | DL | 111 | 1128 | 976 | 0 | 0 |
| 49 | UA3MBJ | KO88 | SS | 110 | 1306 | 1541 | 0 | 0 |
| 50 | GW4LXO | IO81 | YL | 109 | 1550 | 0 | 0 | 0 |
| 51 | SP6GZZ | JO81 | IL | 109 | 1549 | 870 | 0 | 0 |
| 52 | DL7UTS | JO62 | GM | 109 | 1507 | 772 | 0 | 0 |
| 53 | HB9MIN/P | JN37 | DH | 109 | 1300 | 0 | 0 | 0 |
| 54 | DL0UL/P | JN48 | EI | 109 | 1238 | 0 | 0 | 0 |
| 55 | SM6CMU | JO57 | FR | 108 | 1641 | 670 | 0 | 0 |
| 56 | SM6AFH | JO66 | GQ | 108 | 1315 | 1200 | 0 | 0 |
| 57 | PA0BAT | JO31 | DL | 105 | 1301 | 0 | 0 | 0 |
| 58 | UT1PA | KO21 | ML | 105 | 1238 | 1761 | 0 | 0 |
| 59 | DF9QX | JO42 | EM | 105 | 1136 | 721 | 0 | 0 |
| 60 | DC4XH | JO43 | EN | 103 | 1133 | 808 | 0 | 0 |
| 61 | UA3DHC | KO96 | TQ | 101 | 1596 | 1009 | 0 | 0 |
| 62 | HB9CRQ | JN47 | EH | 101 | 1010 | 0 | 0 | 0 |
| 63 | DG9NBT | JN49 | EJ | 100 | 1204 | 0 | 0 | 0 |
| 64 | UT7GA | KN66 | QG | 98 | 1877 | 0 | 0 | 0 |
| 65 | SP9HWY | JO90 | JK | 98 | 1398 | 1306 | 0 | 0 |
| 66 | OK1DKS/P | JO60 | GK | 98 | 1118 | 0 | 0 | 0 |
| 67 | ON4GG | JO20 | CK | 96 | 1407 | 0 | 0 | 0 |
| 68 | ON4ANT | JO20 | CK | 96 | 1406 | 0 | 0 | 0 |
| 69 | DK0OG | JN68 | GI | 96 | 1351 | 745 | 0 | 0 |
| 70 | DL3AMA | JO51 | FL | 94 | 1015 | 1219 | 0 | 0 |
| 71 | DL2NWK | JO63 | GN | 92 | 1636 | 590 | 0 | 0 |
| 72 | DJ1LP | JO64 | GO | 91 | 1414 | 0 | 0 | 0 |
| 73 | DG5NEX | JN49 | EJ | 91 | 1187 | 0 | 0 | 0 |
| 74 | G4LRT | IO92 | ZM | 90 | 1394 | 410 | 0 | 0 |
| 75 | DK9RL | JN69 | GJ | 87 | 1185 | 0 | 0 | 0 |
| 76 | SP5EFO | KO02 | KM | 87 | 1120 | 1705 | 0 | 0 |
| 77 | DD0BI | JO33 | DN | 85 | 1259 | 0 | 0 | 0 |
| 78 | F5HRY | JN18 | BI | 85 | 1222 | 583 | 0 | 0 |
| 79 | UY5HF | KN66 | QG | 84 | 1670 | 0 | 0 | 0 |
| 80 | DK1VI | JN49 | EJ | 84 | 1125 | 870 | 0 | 0 |
| 81 | DC6DY | JO31 | DL | 83 | 1190 | 0 | 0 | 0 |
| 82 | DL5BCU | JO43 | EN | 83 | 1188 | 766 | 0 | 0 |
| 83 | DG0CR/P | JO50 | FK | 82 | 1048 | 759 | 0 | 0 |
| 84 | HB9AOF | JN36 | DG | 82 | 926 | 0 | 0 | 0 |
| 85 | DK2DB | JN48 | EI | 81 | 1331 | 0 | 0 | 0 |
| 86 | HB9MIO/P | JN37 | DH | 81 | 1096 | 0 | 0 | 0 |
| 87 | DF1EQ | JO31 | DL | 80 | 1249 | 0 | 0 | 0 |
| 88 | F6CKZ | JN09 | AJ | 76 | 1038 | 0 | 0 | 0 |
| 89 | DJ8ES | JO43 | EN | 76 | 1025 | 0 | 0 | 0 |
| 90 | DH3YAK | JO31 | DL | 75 | 1165 | 0 | 0 | 0 |
| 91 | F1GTU | JN05 | AF | 75 | 1114 | 0 | 0 | 0 |
| 92 | OK1FFD | JO60 | GK | 74 | 1339 | 0 | 0 | 0 |
| 93 | RW3RW | LO02 | UM | 73 | 1275 | 1284 | 0 | 0 |
| 94 | UR7GN | KN66 | QG | 70 | 1790 | 0 | 0 | 0 |
| 95 | OE3JPC | JN88 | II | 69 | 1000 | 1450 | 0 | 0 |
| 96 | S50C | JN76 | HG | 68 | 817 | 0 | 0 | 0 |
| 97 | DG1VL | JO61 | GL | 67 | 1125 | 0 | 0 | 0 |
| 98 | DL0SP/P | JO62 | GM | 64 | 909 | 0 | 0 | 0 |
| 99 | G6LEU | IO70 | XK | 63 | 1400 | 0 | 0 | 0 |
| 100 | OK1SC | JO70 | HK | 63 | 1310 | 758 | 0 | 0 |
| 101 | F5JRX | JN25 | CF | 62 | 1070 | 0 | 0 | 0 |
| 102 | OK1DFC/P | JO60 | GK | 62 | 977 | 0 | 0 | 0 |
| 103 | DL8AAV | JO52 | FM | 62 | 914 | 0 | 0 | 0 |
| 104 | UA4NM | LO48 | YS | 58 | 1230 | 1310 | 0 | 0 |
| 105 | UA3MAS | KO97 | TR | 57 | 1254 | 1251 | 0 | 0 |
| 106 | DL3IAS | JN49 | EJ | 55 | 886 | 0 | 0 | 0 |
| 107 | DB8NU | JN49 | EJ | 55 | 691 | 0 | 0 | 0 |

## DUBUS 1296 MHz Top List

| NR | CALL | WW | EU | WKO | DX |
|---|---|---|---|---|---|
| 1 | PA0EZ | JO22 | CM | 121 | 1261 |
| 2 | PA0RDY | JO22 | CM | 119 | 1286 |
| 3 | F6DKW | JN18 | BI | 117 | 1273 |
| 4 | F5FHI | IN97 | ZH | 115 | 1538 |
| 5 | PA0WWM | JO22 | CM | 115 | 1298 |
| 6 | HB9AMH/P | JN37 | DH | 111 | 1351 |
| 7 | DB6NT/A | JO50 | FK | 107 | 1243 |
| 8 | G3LQR | JO02 | AM | 106 | 1274 |
| 9 | G3XDY | JO02 | AM | 105 | 1199 |
| 10 | PE0AGO | JO32 | DM | 102 | 1200 |
| 11 | SP6GWB | JO80 | IK | 91 | 1580 |
| 12 | F1EAN | JN06 | AG | 90 | 1321 |
| 13 | OK1KIR/P | JO60 | GK | 89 | 1208 |
| 14 | DB6BX | JO32 | DM | 89 | 1117 |
| 15 | SM6ESG | JO67 | GR | 88 | 1440 |
| 16 | OE5VRL/5 | JN78 | HI | 86 | 1522 |
| 17 | G6DER | IO93 | ZN | 86 | 1306 |
| 18 | DL7QY | JN59 | FJ | 86 | 1261 |
| 19 | F5PAU | IN88 | YI | 85 | 1630 |
| 20 | SP6MLK | JO80 | IK | 85 | 1580 |
| 21 | OZ2OE | JO45 | EP | 82 | 1425 |
| 22 | SM7ECM | JO65 | GP | 82 | 1326 |
| 23 | DL3YEE | JO42 | EM | 80 | 1136 |
| 24 | DK1KR | JO53 | FN | 79 | 1097 |
| 25 | PA3DIJ | JO33 | DN | 79 | 939 |
| 26 | DK6AS | JO52 | FM | 78 | 1421 |
| 27 | PA0BAT | JO31 | DL | 78 | 1014 |
| 28 | DL1BKK | JO43 | EN | 75 | 995 |
| 29 | G6LEU | IO70 | XK | 74 | 2620 |
| 30 | OZ7IS | JO65 | GP | 72 | 1205 |
| 31 | OZ1IPU | JO57 | FR | 72 | 1096 |
| 32 | OK1CA | JO70 | HK | 70 | 1421 |
| 33 | DL4VCG | JN39 | DJ | 70 | 838 |
| 34 | OK1AIY/P | JO70 | HK | 69 | 1490 |
| 35 | G4PMK | IO93 | ZN | 66 | 1302 |
| 36 | G4LRT | IO92 | ZM | 66 | 1152 |
| 37 | HB9RG | JN47 | EH | 66 | 920 |
| 38 | OZ1DOQ | JO65 | GP | 65 | 1319 |
| 39 | DF1EQ | JO31 | DL | 65 | 908 |
| 40 | G6HKM | JO01 | AL | 64 | 1193 |
| 41 | OK1DFC/P | JO60 | GK | 64 | 1176 |
| 42 | DK0OG | JN68 | GI | 63 | 1160 |
| 43 | DC4XH | JO43 | EN | 63 | 1090 |
| 44 | DG9NBT | JN49 | EJ | 62 | 1016 |
| 45 | DH3NAN | JO50 | FK | 61 | 1143 |
| 46 | DG5NEX | JN49 | EJ | 61 | 1060 |
| 47 | HB9AOF | JN36 | DG | 61 | 920 |
| 48 | HB9MIO/P | JN37 | DH | 60 | 1000 |
| 49 | F5HRY | JN18 | BI | 59 | 1064 |
| 50 | DL0UL/P | JN48 | EI | 58 | 962 |
| 51 | DF9QX | JO42 | EM | 57 | 1066 |
| 52 | SM0FZH | JO99 | JT | 56 | 1252 |
| 53 | DJ6XV | JO31 | DL | 56 | 946 |
| 54 | DG0CR/P | JO50 | FK | 55 | 1048 |
| 55 | DC0DA | JO31 | DL | 55 | 1034 |
| 56 | DL1SUN | JO53 | FN | 54 | 1162 |
| 57 | DC8UG | JO30 | DK | 54 | 900 |
| 58 | DL9GU | JN49 | EJ | 54 | 900 |
| 59 | RA3LE | KO64 | QO | 52 | 1428 |
| 60 | SP9FG | JN99 | JJ | 51 | 1492 |
| 61 | DL3NQ | JN49 | EJ | 51 | 920 |
| 62 | ON4ANT | JO20 | CK | 51 | 914 |
| 63 | LA8AK | JO38 | DS | 49 | 1373 |
| 64 | DB8NU | JN49 | EJ | 49 | 1016 |
| 65 | GW4LXO | IO81 | YL | 48 | 990 |
| 66 | OK1DKS/P | JO60 | GK | 46 | 1207 |
| 67 | ON4GG | JO20 | CK | 44 | 934 |
| 68 | DJ8ES | JO43 | EN | 43 | 839 |
| 69 | DJ6MB | JO30 | DK | 42 | 876 |
| 70 | DB1BX | JO32 | DM | 41 | 895 |
| 71 | OK1FFD | JO60 | GK | 40 | 1058 |
| 72 | DL3IAS | JN49 | EJ | 40 | 769 |
| 73 | F6CGB | JN18 | BI | 40 | 700 |
| 74 | DC6DY | JO31 | DL | 39 | 865 |
| 75 | DJ1KP | JO40 | EK | 39 | 698 |
| 76 | F1GTU | JN05 | AF | 36 | 896 |
| 77 | DK2DB | JN48 | EI | 36 | 873 |
| 78 | OE3JPC | JN88 | II | 36 | 702 |
| 79 | RA3YCR | KO73 | RN | 36 | 657 |
| 80 | I0LVA | JN62 | GC | 33 | 1152 |
| 81 | SP9EWU | JO90 | JK | 33 | 946 |
| 82 | DH3YAK | JO31 | DL | 33 | 715 |
| 83 | DF6VB | JO31 | DL | 31 | 722 |
| 84 | UR7GN | KN66 | QG | 30 | 820 |
| 85 | I2FUM/2 | JN44 | EE | 30 | 779 |
| 86 | DG1VL | JO61 | GL | 28 | 723 |
| 87 | S50C | JN76 | HG | 28 | 626 |
| 88 | DK9RL | JN69 | GJ | 27 | 891 |
| 89 | DK0PX | JN48 | EI | 27 | 725 |
| 90 | UT7GA | KN66 | QG | 26 | 680 |
| 91 | OZ8VO | JO56 | FQ | 24 | 951 |
| 92 | UA3MBJ | KO88 | SS | 20 | 301 |
| 93 | OH5LK | KP30 | NU | 18 | 1349 |
| 94 | DK0FLT | JN49 | EJ | 17 | 567 |
| 95 | DJ1LP | JO64 | GO | 15 | 558 |
| 96 | DK1VI | JN49 | EJ | 15 | 424 |
| 97 | OK1VBN | JN78 | HI | 15 | 307 |
| 98 | 9A2EY | JN75 | HF | 14 | 395 |
| 99 | HA1SO | JN87 | IH | 14 | 348 |
| 100 | F1FIH | JN23 | CD | 13 | 475 |
| 101 | HA1DAB | JN87 | IH | 13 | 292 |
| 102 | UA3MAS | KO97 | TR | 11 | 265 |
| 103 | OK1SC | JO70 | HK | 10 | 440 |
| 104 | UA6LGH | KN97 | TH | 9 | 464 |
| 105 | DL0SP/P | JO62 | GM | 9 | 347 |
| 106 | RW3RW | LO02 | UM | 8 | 400 |
| 107 | UY5HF | KN66 | QG | 6 | 520 |
| 108 | UA3TCF | LO26 | WQ | 5 | 455 |
| 109 | UA3TIE | LO16 | VQ | 2 | 403 |

## DUBUS 2320 MHz Top List

| NR | CALL | WW | EU | WKO | DX |
|---|---|---|---|---|---|
| 1 | PA0EZ | JO22 | CM | 72 | 962 |
| 2 | PA0RDY | JO22 | CM | 60 | 831 |
| 3 | DB6NT/A | JO50 | FK | 55 | 1119 |
| 4 | PA0WWM | JO22 | CM | 55 | 851 |
| 5 | G3LQR | JO02 | AM | 52 | 1006 |
| 6 | PE0AGO | JO32 | DM | 49 | 800 |
| 7 | OK1KIR/P | JO60 | GK | 48 | 1115 |
| 8 | DL7QY | JN59 | FJ | 47 | 1018 |
| 9 | G6DER | IO93 | ZN | 44 | 1265 |
| 10 | DL1BKK | JO43 | EN | 43 | 760 |
| 11 | PA3DIJ | JO33 | DN | 43 | 727 |
| 12 | OK1AIY/P | JO70 | HK | 40 | 1296 |
| 13 | SM6ESG | JO67 | GR | 40 | 1051 |
| 14 | F5FHI | IN97 | ZH | 37 | 1017 |
| 15 | PA0BAT | JO31 | DL | 37 | 923 |
| 16 | OE5VRL/5 | JN78 | HI | 36 | 1289 |
| 17 | DC8UG | JO30 | DK | 33 | 900 |
| 18 | DF1EQ | JO31 | DL | 33 | 678 |
| 19 | OZ1IPU | JO57 | FR | 31 | 1028 |
| 20 | DC0DA | JO31 | DL | 31 | 775 |
| 21 | SM7ECM | JO65 | GP | 30 | 880 |
| 22 | DL3NQ | JN49 | EJ | 29 | 890 |
| 23 | DL9GU | JN49 | EJ | 29 | 877 |
| 24 | G4LRT | IO92 | ZM | 28 | 1022 |
| 25 | OZ7IS | JO65 | GP | 28 | 860 |
| 26 | G3XDY | JO02 | AM | 27 | 947 |
| 27 | DL3YEE | JO42 | EM | 27 | 912 |
| 28 | DG0CR/P | JO50 | FK | 26 | 962 |
| 29 | DF9QX | JO42 | EM | 26 | 915 |
| 30 | OZ2OE | JO45 | EP | 26 | 809 |
| 31 | HB9MIO/P | JN37 | DH | 26 | 694 |
| 32 | DL4VCG | JN39 | DJ | 25 | 668 |
| 33 | I0LVA | JN62 | GC | 23 | 612 |
| 34 | DJ1KP | JO40 | EK | 23 | 454 |
| 35 | G4PMK | IO93 | ZN | 22 | 1249 |
| 36 | OZ1DOQ | JO65 | GP | 22 | 827 |
| 37 | DL0UL/P | JN48 | EI | 21 | 493 |
| 38 | DK2DB | JN48 | EI | 20 | 873 |
| 39 | F1EAN | JN06 | AG | 19 | 940 |
| 40 | HB9AMH/P | JN37 | DH | 18 | 933 |
| 41 | DK0OG | JN68 | GI | 18 | 675 |
| 42 | DB1BX | JO32 | DM | 18 | 525 |
| 43 | DK0PX | JN48 | EI | 17 | 566 |
| 44 | DG9NBT | JN49 | EJ | 17 | 465 |
| 45 | DB8NU | JN49 | EJ | 17 | 428 |
| 46 | DG5NEX | JN49 | EJ | 16 | 465 |
| 47 | DL3IAS | JN49 | EJ | 15 | 445 |
| 48 | DF6VB | JO31 | DL | 15 | 414 |
| 49 | OK1DKS/P | JO60 | GK | 13 | 602 |
| 50 | F5HRY | JN18 | BI | 13 | 539 |
| 51 | DJ6XV | JO31 | DL | 12 | 396 |
| 52 | DK6AS | JO52 | FM | 11 | 620 |
| 53 | DJ8ES | JO43 | EN | 10 | 682 |
| 54 | I2FUM/2 | JN44 | EE | 10 | 354 |
| 55 | DK1KR | JO53 | FN | 9 | 792 |
| 56 | DL1SUN | JO53 | FN | 9 | 349 |
| 57 | LA8AK | JO38 | DS | 8 | 677 |
| 58 | OK1CA | JO70 | HK | 8 | 291 |
| 59 | DK0FLT | JN49 | EJ | 7 | 464 |
| 60 | DH3NAN | JO50 | FK | 7 | 331 |
| 61 | F1GTU | JN05 | AF | 7 | 313 |
| 62 | S50C | JN76 | HG | 5 | 346 |
| 63 | F6CGB | JN18 | BI | 4 | 407 |
| 64 | SP9FG | JN99 | JJ | 3 | 342 |
| 65 | DF2CA/P | JN57 | FH | 3 | 206 |

| | | | | | |
|---|---|---|---|---|---|
| 66 | GW4LXO | IO81 | YL | 3 | 200 |
| 67 | OK1VBN | JN78 | HI | 3 | 158 |
| 68 | F5PAU | IN88 | YI | 2 | 120 |
| 69 | 9A2EY | JN75 | HF | 2 | 96 |
| 70 | SP9EWU | JO90 | JK | 1 | 134 |

## DUBUS 3400 MHz Top List

| NR | CALL | WW | EUWKODX | | |
|---|---|---|---|---|---|
| 1 | DB6NT/A | JO50 | FK | 27 | 738 |
| 2 | PA0EZ | JO22 | CM | 23 | 636 |
| 3 | DC0DA | JO31 | DL | 17 | 660 |
| 4 | PE0AGO | JO32 | DM | 17 | 457 |
| 5 | G3LQR | JO02 | AM | 16 | 924 |
| 6 | PA0BAT | JO31 | DL | 16 | 568 |
| 7 | PA0WWM | JO22 | CM | 16 | 435 |
| 8 | DL1BKK | JO43 | EN | 15 | 703 |
| 9 | DL3NQ | JN49 | EJ | 15 | 637 |
| 10 | DL7QY | JN59 | FJ | 15 | 565 |
| 11 | DC8UG | JO30 | DK | 13 | 724 |
| 12 | G6DER | IO93 | ZN | 13 | 718 |
| 13 | DF1EQ | JO31 | DL | 13 | 532 |
| 14 | PA0RDY | JO22 | CM | 12 | 445 |
| 15 | G4PMK | IO93 | ZN | 10 | 845 |
| 16 | DB1BX | JO32 | DM | 9 | 425 |
| 17 | DK2DB | JN48 | EI | 9 | 331 |
| 18 | DL0UL/P | JN48 | EI | 9 | 239 |
| 19 | G4LRT | IO92 | ZM | 6 | 563 |
| 20 | DK0PX | JN48 | EI | 6 | 528 |
| 21 | DL4VCG | JN39 | DJ | 6 | 339 |
| 22 | DJ8ES | JO43 | EN | 4 | 578 |
| 23 | DJ6XV | JO31 | DL | 3 | 396 |
| 24 | GW4LXO | IO81 | YL | 3 | 117 |
| 25 | DF9QX | JO42 | EM | 2 | 143 |
| 26 | DK0OG | JN68 | GI | 2 | 78 |
| 27 | DF2CA/P | JN57 | FH | 2 | 24 |

## DUBUS 5700 MHz Top List

| NR | CALL | WW | EUWKODX | | |
|---|---|---|---|---|---|
| 1 | HB9AMH/P | JN37 | DH | 29 | 700 |
| 2 | SM7ECM | JO65 | GP | 27 | 960 |
| 3 | DB6NT/A | JO50 | FK | 26 | 880 |
| 4 | PA0EZ | JO22 | CM | 26 | 835 |
| 5 | HB9MIO/P | JN37 | DH | 26 | 694 |
| 6 | SM6ESG | JO67 | GR | 21 | 947 |
| 7 | G3LQR | JO02 | AM | 20 | 949 |
| 8 | DL1BKK | JO43 | EN | 18 | 689 |
| 9 | OZ1IPU | JO57 | FR | 17 | 805 |
| 10 | PA0BAT | JO31 | DL | 17 | 723 |
| 11 | OK1UWA/P | JO70 | HK | 16 | 998 |
| 12 | OK1KIR/P | JO60 | GK | 16 | 393 |
| 13 | PE0AGO | JO32 | DM | 15 | 800 |
| 14 | I0LVA | JN62 | GC | 12 | 557 |
| 15 | DL3NQ | JN49 | EJ | 12 | 318 |
| 16 | DC0DA | JO31 | DL | 11 | 451 |
| 17 | DL0UL/P | JN48 | EI | 11 | 266 |
| 18 | DC8UG | JO30 | DK | 10 | 724 |
| 19 | OK1AIY/P | JO70 | HK | 10 | 693 |
| 20 | OZ7IS | JO65 | GP | 10 | 593 |
| 21 | DL7QY | JN59 | FJ | 10 | 565 |
| 22 | G6DER | IO93 | ZN | 9 | 947 |
| 23 | PA0WWM | JO22 | CM | 9 | 772 |
| 24 | OZ1DOQ | JO65 | GP | 8 | 415 |
| 25 | HB9MIN/P | JN37 | DH | 8 | 286 |
| 26 | S51WI | JN75 | HF | 7 | 532 |
| 27 | G4PMK | IO93 | ZN | 6 | 958 |
| 28 | DK2DB | JN48 | EI | 6 | 315 |
| 29 | DC8EC/A | JN57 | FH | 6 | 278 |
| 30 | I2FUM/2 | JN44 | EE | 6 | 201 |
| 31 | DF1EQ | JO31 | DL | 5 | 461 |
| 32 | DK0PX | JN48 | EI | 5 | 324 |
| 33 | DB1BX | JO32 | DM | 5 | 150 |
| 34 | F6CGB | JN18 | BI | 4 | 407 |
| 35 | DL1JIN/P | JO60 | GK | 4 | 321 |
| 36 | DG0CR/P | JO50 | FK | 4 | 304 |
| 37 | DL4VCG | JN39 | DJ | 3 | 339 |
| 38 | F6CGB/P | JN24 | CE | 2 | 375 |
| 39 | DG1VL | JO61 | GL | 2 | 161 |
| 40 | DJ6XV | JO31 | DL | 2 | 144 |
| 41 | DK0OG | JN68 | GI | 2 | 78 |

## DUBUS 10 GHz Top List

| NR | CALL | WW | EUWKODX | | |
|---|---|---|---|---|---|
| 1 | PA0EZ | JO22 | CM | 50 | 835 |
| 2 | G3WDG | IO92 | ZM | 46 | 1135 |
| 3 | HB9AMH/P | JN37 | DH | 43 | 939 |
| 4 | HB9MIN/P | JN37 | DH | 41 | 939 |
| 5 | G4KGC | IO92 | ZM | 39 | 1135 |
| 6 | SM7ECM | JO65 | GP | 39 | 1110 |
| 7 | I6XCK/6 | JN63 | GD | 39 | 702 |
| 8 | F6DKW | JN18 | BI | 35 | 1215 |
| 9 | I6CXB/6 | JN63 | GD | 35 | 751 |
| 10 | DL3YEE | JO42 | EM | 35 | 700 |
| 11 | SM6ESG | JO67 | GR | 33 | 1140 |
| 12 | DB6NT/A | JO50 | FK | 31 | 692 |
| 13 | PA0BAT | JO31 | DL | 31 | 604 |
| 14 | G4BRK | IO91 | ZL | 30 | 1115 |
| 15 | G3LQR | JO02 | AM | 30 | 924 |
| 16 | DK1KR | JO53 | FN | 29 | 868 |
| 17 | HB9RG | JN47 | EH | 28 | 761 |
| 18 | HB9MIO/P | JN37 | DH | 28 | 694 |
| 19 | OE5VRL/5 | JN78 | HI | 26 | 1134 |
| 20 | I0LVA | JN62 | GC | 26 | 850 |
| 21 | DL3NQ | JN49 | EJ | 26 | 712 |
| 22 | DL1BKK | JO43 | EN | 24 | 662 |
| 23 | OZ1IPU | JO57 | FR | 22 | 941 |
| 24 | PA0WWM | JO22 | CM | 21 | 589 |
| 25 | OK1KIR/P | JO60 | GK | 21 | 419 |
| 26 | OZ2OE | JO45 | EP | 20 | 789 |
| 27 | DF9QX | JO42 | EM | 19 | 504 |
| 28 | G4LDR | IO91 | ZL | 18 | 1118 |
| 29 | PE0AGO | JO32 | DM | 18 | 800 |
| 30 | DK0OG | JN68 | GI | 18 | 512 |
| 31 | DJ1KP | JO40 | EK | 18 | 413 |
| 32 | DK0PX | JN48 | EI | 17 | 419 |
| 33 | DK4GD/P | JN48 | EI | 17 | 411 |
| 34 | DL0UL/P | JN57 | EI | 17 | 363 |
| 35 | OK1AIY/P | JO70 | HK | 16 | 736 |
| 36 | DC8UG | JO30 | DK | 15 | 753 |
| 37 | S51WI | JN75 | HF | 15 | 532 |
| 38 | DL7QY | JN59 | FJ | 15 | 492 |
| 39 | OK1UWA/P | JO70 | HK | 15 | 434 |
| 40 | G4PMK | IO93 | ZN | 14 | 958 |
| 41 | DC0DA | JO31 | DL | 14 | 639 |
| 42 | DK2DB | JN48 | EI | 14 | 432 |
| 43 | F5HRY | JN18 | BI | 12 | 684 |
| 44 | DG9NBT | JN49 | EJ | 12 | 426 |
| 45 | DL4VCG | JN39 | DJ | 12 | 360 |
| 46 | GW4LXO | IO81 | YL | 12 | 309 |
| 47 | G4KNZ | IO91 | ZL | 12 | 247 |
| 48 | DB1BX | JO32 | DM | 11 | 465 |
| 49 | I4XCC | JN63 | GD | 11 | 426 |
| 50 | HB9AMH | JN37 | DH | 9 | 567 |
| 51 | DC8EC/A | JN57 | FH | 9 | 297 |
| 52 | SM0FZH | JO99 | JT | 9 | 242 |
| 53 | F6CGB | JN18 | BI | 8 | 677 |
| 54 | F6CGB/P | JN12 | BC | 7 | 823 |
| 55 | DL1JIN/P | JO60 | GK | 7 | 345 |
| 56 | OZ1DOQ | JO65 | GP | 6 | 472 |
| 57 | PA3DIJ | JO33 | DN | 6 | 344 |
| 58 | DL3IAS | JN49 | EJ | 6 | 176 |
| 59 | LA8AK | JO38 | DS | 5 | 212 |
| 60 | DJ8ES | JO43 | EN | 5 | 210 |
| 61 | DF6VB | JO31 | DL | 5 | 162 |
| 62 | DJ6XV | JO31 | DL | 5 | 144 |
| 63 | 9A2EY | JN75 | HF | 4 | 374 |
| 64 | DK0FLT | JN49 | EJ | 4 | 284 |
| 65 | DG0CR/P | JO50 | FK | 4 | 283 |
| 66 | DG1VL | JO61 | GL | 4 | 197 |
| 67 | DF1EQ | JO31 | DL | 4 | 181 |
| 68 | S50C | JN76 | HG | 4 | 176 |
| 69 | DH3NAN | JO50 | FK | 3 | 134 |
| 70 | G4LRT | IO92 | ZM | 3 | 103 |
| 71 | DG5NEX | JN49 | EJ | 1 | 173 |

## DUBUS 24 GHz Top List

| NR | CALL | WW | EUWKODX | | |
|---|---|---|---|---|---|
| 1 | HB9MIN/P | JN37 | DH | 12 | 396 |
| 2 | HB9AMH/P | JN37 | DH | 10 | 286 |
| 3 | HB9MIO/P | JN37 | DH | 10 | 172 |
| 4 | DC8EC/P | JN57 | FH | 8 | 245 |
| 5 | DB6NT/A | JO50 | FK | 5 | 178 |
| 6 | DF2CA/P | JN58 | FI | 5 | 142 |
| 7 | DL3NQ | JN49 | EJ | 4 | 287 |
| 8 | DK4GD/P | JN48 | EI | 4 | 184 |
| 9 | DL3YEE/P | JO42 | EM | 4 | 151 |
| 10 | DF6VB/P | JO31 | DL | 4 | 104 |
| 11 | OK1AIY-P | JO60 | GK | 3 | 227 |
| 12 | G4KNZ/P | IO83 | YN | 3 | 120 |
| 13 | DK0PX | JN48 | EI | 3 | 99 |
| 14 | DJ1KP | JO40 | EK | 3 | 75 |
| 15 | OK1AIY/P | JO70 | HK | 2 | 266 |
| 16 | DF1EQ/P | JO31 | DL | 2 | 133 |
| 17 | DL1JIN/P | JO60 | GK | 2 | 58 |
| 18 | DG0CR/P | JO50 | FK | 2 | 52 |
| 19 | DK2DB | JN48 | EI | 2 | 48 |
| 20 | DC0DA/P | JO32 | DM | 1 | 104 |
| 21 | F6CGB/P | JN37 | DH | 1 | 74 |

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| | | | | | |
|---|---|---|---|---|---|
| 22 | GW4LXO | IO81 | YL | 1 | 58 |
| 23 | OZ1IPU | JO57 | FR | 1 | 55 |
| 24 | OK1UWA/P | JO70 | HK | 1 | 43 |
| 25 | DB1BX | JO32 | DM | 1 | 37 |
| 26 | DL4VCG | JN39 | DJ | 1 | 9 |
| 27 | PA0BAT | JO31 | DL | 1 | 3 |
| 28 | G3LQR | JO02 | AM | 1 | 2 |

## DUBUS 47 GHz Top List

| NR | CALL | WW | EU | WK | ODX |
|---|---|---|---|---|---|
| 1 | HB9MIN/P | JN37 | DH | 8 | 185 |
| 2 | HB9MIO/P | JN37 | DH | 8 | 166 |
| 3 | HB9AMH/P | JN37 | DH | 5 | 166 |
| 4 | DF2CA/P_ | JN58 | FI | 4 | 15 |
| 5 | OE9PMJ/9 | JN47 | EH | 4 | 12 |
| 6 | OE9YTV/9 | JN47 | EH | 4 | 11 |
| 7 | DK4GD/P | JN47 | EH | 3 | 123 |
| 8 | DB6NT/A | JO50 | FK | 2 | 95 |
| 9 | DF6VB/P | JO31 | DL | 2 | 69 |
| 10 | DC0DA/P | JO31 | DL | 2 | 69 |
| 11 | DF2CA/P | JO60 | GK | 2 | 59 |
| 12 | DL3YEE/P | JO42 | EM | 2 | 45 |
| 13 | DL/HB9AMH/P | JN48 | EI | 1 | 184 |
| 14 | DL1JIN/P | JO60 | GK | 1 | 58 |
| 15 | DC8EC/A | JN57 | FH | 1 | 14 |

## DUBUS 76 GHz Top List

| NR | CALL | WW | EU | WK | ODX |
|---|---|---|---|---|---|
| 1 | DG2MF/P | JO58 | FI | 4 | 4 |
| 2 | DF2CA/P | JO50 | FK | 4 | 4 |
| 3 | OE9YTV/9 | JN57 | FH | 3 | 1 |
| 4 | OE9PMJ/9 | JN57 | FH | 3 | 1 |
| 5 | DB6NT/A | JO50 | FK | 2 | 77 |
| 6 | DC0DA/P | JO50 | FK | 2 | 48 |
| 7 | DF6VB/P | JO50 | FK | 1 | 18 |
| 8 | DL1JIN/P | JO60 | GK | 1 | 11 |
| 9 | OE9FKI | JN47 | EH | 1 | 2 |
| 10 | HB9AMH/P | JN37 | DH | 1 | 1 |
| 11 | HB9MIN/P | JN37 | DH | 1 | 1 |

## DUBUS 145 GHz Top List

| NR | CALL | WW | EU | WK | ODX |
|---|---|---|---|---|---|
| 1 | DB6NT/OZ | JO57 | FR | 1 | 3 |
| 2 | DB6NT/A | JO50 | FK | 1 | 1 |
| 3 | DL1JIN/P | JO60 | GK | 1 | 1 |

## DUBUS 241 GHz Top List

| NR | CALL | WW | EU | WK | ODX |
|---|---|---|---|---|---|
| 1 | DB6NT/A | JO50 | FK | 1 | 0 |
| 2 | DB6NT/OZ | JO57 | FR | 1 | 0 |